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Railway Age

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In This Issue

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TO EXPEDITE DEFENSE SHIPMENTS --

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RAILWAY AGE

The Failure of Priorities for Railroads

The success of the railroads in meeting the traffic demands expected to be made on them in the next twelve months will depend in large degree upon whether the manufacturers of railway equipment and materials are able to fill the orders which the railways have placed, and will continue placing, with them. The success of the manufacturers, in turn, in meeting their schedules of deliveries will be determined mainly by the efficiency and good intentions of the federal authorities rationing the supplies of materials.

Rationing Has Fallen Down

Thus far the results secured by the materials-rationers in supplying to manufacturers of railway equipment have not been brilliant. In fact, as is generally but rather hazily recognized, the schedules of equipment deliveries by the manufacturers to the railroads have been seriously delayed, and are still being delayed. This statement of fact implies no judgment on the government officials charged with the job of rationing. For all we know they may be the most efficient executives in the country—this being the one division of the executive branch of the government any question about the ability and good intentions of which may safely be resolved in its favor. Perhaps the job is just too big for anybody. Or perhaps (and this probably is the answer), it takes time to get such a huge job organized, and the customers have to suffer meantime.

Be that as it may, the delay already has gone too far. Some of Mr. Roosevelt's young men are hovering in the offing for a chance to make a plausible accusation of "railroad break-down" and with that pretext to rush in and socialize the railroads, with the hope of placing themselves in managerial positions, and thus fixing themselves with good jobs for the rest of their precocious lives. There is not going to be any real "break-down" of railway transportation. That has been demonstrated in 1941. Even if present delays in the supply of needed materials to the equipment manufacturers are not quickly remedied, the very worst that would occur would be some slowness in transportation, not a "break-down." The steel industry has not "broken down" because it has had to make some customers wait for awhile for steel; and neither would it be a "break-down" if the railroads should have to ask some shippers to wait a short time for the transportation of their goods. Nevertheless, the socialistic politicians and hangers-on would call it that. Moreover, there isn't any need of it happening.

There is an old saying that "the wheel that creaks the loudest gets the grease." Possibly one of the reasons why such little progress has been made in ending the delays in basic materials needed for the manufacture of railway equipment is that so little complaint has been made about these delays. This country is in, or nearly in, a world war. If the successful defense of the country requires ships or guns more urgently than freight cars, then more material should be allotted to these more urgent needs, even at the expense of some delay in producing freight cars.

Unsafe to Depend on Federal Officials

But people with experience in the last war, and with the conduct of the New Deal in this war, know very well that federal officials cannot be depended upon to be comprehensive in their view of the nation's military protection. Federal officials, like almost everybody else in the country, are specialists; and, consequently, work under a constant temptation to see their own particular trees, but not the whole forest. The trees therefore need attention-callers to see that they are not overlooked. It is the duty of responsible people in the railway and railway equipment industries not to insist that railway material requirements be met ahead of all other demands, but to keep before the public and the responsible government officials the importance of continued efficient railroad service, and to connect in their minds the relationship of an adequate supply of materials with such service.

Just to indicate how little the Washington authorities

can be depended upon—on their own initiative—to see all the aspects of the defense job in their intrinsic relationship, an instance from the last war may be cited. An official was endeavoring to secure some high-grade steel for an important job, and found the supply preempted for the construction of naval guns. Those in charge of gun construction jealously refused to make any concession at all, insisting that their work was of primary importance and must not be delayed. Further inquiry disclosed that the gun program was away ahead of the construction of the ships on which the guns were to be mounted. So much so, in fact, that the gun enthusiasts were **demanding materials for guns destined for ships of which the keels had not been laid.**

General Hugh Johnson, who ought to know if anybody does, has said that military people are not immune to the temptation to hoard materials to protect their specialized interests. But in modern warfare industrial weapons are just as important as guns—a fact not easily comprehended. The military authorities are given first call on scarce materials, whereas it might very well often be that, **even from a strictly military point of view,** trucks or locomotives or machinery are a prior necessity. The good intentions of the Washington people are not enough; they must also use their brains. And the only way to assure that they will do so is for the people who are responsible for transportation to keep reminding these authorities of the importance of transportation; and that transportation cannot function without steel, alloys and other scarce materials.

Some Federal Authorities Mean Well, But Not All

In the last war the country was fortunate in the fact that Washington officials, however bungling they might be, at least meant well. There were few who were more interested in some political or economic objective of their own than in their country's safety. That happy condition, as everybody knows, no longer exists. The advocacy of the St. Lawrence and other such waterway projects on the claim that they are necessary to defense shows to what extent these new elements in Washington are willing to pawn their country's safety in order to further their plans for socialization of the economy. The railroads are asking for materials so that they may continue to give good service **next year.** Some people in Washington would take away the materials needed to give good transportation **next year** and use them, instead, to provide costlier and slower transportation **six years from now**—all for the glory and honor of state socialism!

The federal government, as competent utility people have pointed out, is putting its aluminum plants, not where there is plenty of electric power to get them into quick production, but out in the wilderness where federal power dams are under construction. The purpose is plainly, not primarily to get more aluminum quickly with which to defend the country against immediate danger, but rather to locate the plants where, with socialized power, they will be in the strongest competitive position after the military crisis has passed.

Some Subordinate Defense to Socialism

It is apparent, therefore, that the correction of the conditions which are delaying the delivery of materials essential to the continued efficient functioning of the railroads cannot safely be left entirely to the initiative of Washington authorities. Where their intentions may be good, their appreciation of the importance of transportation may well be lacking. And with so many people in Washington whose motives, obviously, will lead, and are leading, to virtual sabotage of national defense in the interest of narrower objectives it is clear that full reliance cannot be put even in the good intentions of all in power in the nation's capital.

The only reasonable course of action for the railroads and the manufacturers of railway equipment and materials is to become more vocal about their needs; and to let the public know wherein the federal authorities are delaying or denying them the materials they must have in order to keep the railways in efficient operation. On another page in this issue is published a survey of the freight car situation up to the end of September. It shows that in the past five months the car builders have failed by about 25,000, or 50 per cent, to deliver to the railways the number of cars they had scheduled to complete in those months, and that this failure was caused by the inability of the manufacturers to secure needed materials.

The situation with regard to locomotives is equally unsatisfactory. The railways have been granted an A-3 priority, which they may pass along to the equipment manufacturers and which the latter may use in the procurement of materials. But of what use is an A-3 priority when producers of these materials are booked to capacity for three months ahead on A-1 priorities? Such is, in some instances, the actual case. Who is able to say positively that all those A-1 priorities cover equipment which is actually more important to the nation's defense than an adequate supply of cars and locomotives on the railroads? Could it be that some of the A-1 priorities bear such rating largely because they cover strictly military goods which may very well not be needed as soon as the railroads are going to need cars and locomotives?

Allocation vs. Priority

The authorities apparently are making some progress in rationing materials by the process of allocation, rather than by priority; and this seems all to the good. At any rate, some of the railway manufacturers are inclined to be more hopeful now than when their only reliance was their A-3 priority. We will have to wait

and see how the system of allocations works. Meantime locomotive frames are standing around in the builders' shops waiting for boilers. One builder who ordered thin sheets for sandboxes early in April is still waiting for them.

In some respects the situation of the accessory manufacturers is even less favorable than that of the equipment builders—especially in the matter of restriction on inventories. No manufacturer can get priority ratings in order to produce for inventory—yet it is the practice in the railway industry to buy many equipment specialties for stock, not on special order. If these specialties can be built only after an order for them is received, that means further delay to the finished product. One locomotive builder not long ago had an order of locomotives all ready for delivery except the whistles. He could get only one whistle for the whole batch of engines, and so had to test them by transferring the whistle from one locomotive to another.

Production for Inventory

If the specialty manufacturer entered this critical period with a considerable inventory on hand he can get priorities as he gets orders. Filling his orders from stock, he can use the priorities to replenish his inventory. But many manufacturers did not enter this period with inventories adequate to the present volume of business, and consequently are not able to fill orders promptly. This is a dangerous situation because, even more than they need new cars and locomotives, the railways must have replacement parts to keep their present equipment in usable condition. It seems that one of the most urgent reforms needed in the whole federal rationing of strategic materials, as far as the railroads are concerned, is a ruling which would assign to manufacturers who normally fill orders out of stock the priorities necessary to maintain inventories adequate to the present volume of business. Priorities or "allocation" in such cases are just as necessary as they are on actual orders for concerns which build only on order.

There appears to have been some unauthorized requisitioning of materials by various government officials. One locomotive manufacturer had a couple of carloads of badly needed special steels spirited away to another consignee by a government official whose only authority appears to have been that he "came from the government." Also, some government procurement people apparently have ordered goods just on the hunch that they might need them—and thus diverted factories from making things for which the need was specific. For instance, machine tools. Some of them have turned up in the market recently ready for instant delivery—but not well adapted to railroad work. Some government people, it appears, ordered these tools "just in case," and the need for them did not develop. The manufacturers, but for these hunch orders from the government, might have devoted their capacity to machines which could now be usefully employed.

Good Railway Service Tied to Efficient Manufacture

This paper intends to go further into this material rationing question, and into others affecting the continued efficient functioning of the manufacturers, on which the railways so largely depend. To this end we invite information from these manufacturers as to what their difficulties are. To the extent that adequate publicity and understanding of such difficulties will aid in their solution, we propose to do our part. Not only now, in the present period of shortage of transportation materials, but in the (probable) coming period of intensified competition for traffic, the kind of backing which the railroad industry gets from the suppliers of its materials will largely determine the success of the railroads' own performance. If railroad people—by more complete information and by taking thought—can assist in assuring the continued resourceful support of these manufacturers, it will be to their advantage thus to cooperate.

We hope that the pages of this paper may be of service to this end.

High Cost of Carelessness

President Roosevelt issued a proclamation recently calling upon the National Safety Council "to mobilize its nation-wide resources in leading a concerted and intensified campaign against accidents." He pointed out that the total number of deaths from accidents this year will exceed 100,000. Col. John Stilwell, president of the National Safety Council, has estimated that the probable economic loss from accidents in 1941 will exceed three and a half billion dollars.

For the first seven months this year, as compared to the same period last year, deaths from occupational accidents and motor vehicle accidents have increased, while those from home accidents and public (not motor vehicle) accidents have decreased. Nevertheless, the total accidents from all causes have increased three per cent over last year.

Preliminary summaries of steam railroad accident statistics for the first seven months of the year, as prepared by the Bureau of Statistics of the Interstate Commerce Commission, show that the number of train accidents increased from 3,969 in 1940 to 4,961 in 1941, or 25 per cent. The total number of persons killed as trespassers, passengers on trains, travelers not on trains, employees on duty, and all other non-trespassers increased from 2,621 to 2,738, or about 4½ per cent; while those injured in these classifications increased from 16,607 to 19,867, or more than 19 per cent. While

these figures are preliminary and subject to revision, they are probably reasonably accurate, so far as disclosing trends is concerned.

It is not surprising that accidents are increasing, considering the growth in traffic and the enlargement of the working forces. But is this necessary? Statistics disclose that some industries and some railroads are making improvements over last year's records, while others are swinging in the opposite direction, and some of them quite decidedly so.

Carelessness is a large factor in accident frequency, and it can be improved by patient and persistent effort and training. This was emphasized in the address this week by B. C. Heacock of the Caterpillar Tractor Company at the opening session of the National Safety Congress. He had been assigned the topic, "The Value of Safety to Industry and the Country." By substituting words and not altering the scope of the title, he made it read, "The Value of Our Carelessness to Our Enemies."

A Principled View of Truck Rates

The attorney-examiner's report on further hearing in Ex Parte MC 22, Motor Carrier Rates in New England, in the opinion of your reporter, is one of the most constructive documents that has yet been written on motor carrier rate regulation.

While the lack of complete information in the record may have prevented the examiner from suggesting all that one might ultimately expect, such omission is not of great consequence when the report is considered from the standpoint of its faithfulness to fundamental principles, which can be violated only to the detriment of economy in transportation. The principles to which this report adheres are those prescribed by law for the regulators —in the provision that they shall safeguard the "inherent advantages" of each form of transportation.

The findings of this report are fairly summarized in the following excerpts:

"Unquestionably, the motor carriers have a limited amount of space available in which to transport property, and it is reasonable that primary consideration should be given to this circumstance. A class rate structure based generally on the theory that a definite revenue return should be obtained for a given amount of space occupied in a vehicle, regardless of the article or articles occupying such space, is a step in the right direction. It is the key to unlock the door to an over-all rate structure that will best serve the needs and problems of the motor carrier industry and shippers in New England.

"Competition with other forms of transportation may not be overlooked; to do so would be disastrous. There are instances in which the competition between the railroads and the motor carriers is so keen as to require the publication of rates at competitive levels. These instances can best be taken care of through the medium of commodity rates between the points and on the traffic where the competition actually exists. This method of procedure should do away with any necessity of attempting to modify the rate structure of competing forms of transportation to fit the services performed by motor carriers, particularly between points between which there is no service performed by the competitors of the motor carriers, or between which there is a wide disparity in the distances over the highways and the railroads.

"In the publication of commodity rates to meet the rates of competing forms of transportation, the motor carriers should give due consideration to the cost of the service to be performed and not propose rates which are lower than the cost of the service plus some measure of profit. The Commission should find that it is improper for motor carriers to publish rates for any transportation service that are lower than the cost of operation for such service, merely because on some other commodities their profit is so great that in the aggregate their revenue will show a profit above total cost.

"The Eastern Conference also contended that the motor carriers should not be required to maintain rates any lower than those required by competition. In those instances where motor carriers can observe rates below those of their competitors and such rates will produce a reasonable profit above cost, the shipping public is entitled to such lower rates, and the Commission should find that any rates higher than those necessary to produce a reasonable profit above cost would be unreasonable and in contravention of the National Transportation Policy of the Congress as expressed in the Transportation Act of 1940, and also in violation of sections 216 (b) and 216 (c) of Part II of the act."

This New England system of truck rates produced a 27 per cent increase in gross revenue—1938 compared with 1940—from operations which appear to your observer, generally speaking, to have been conducted within a sound economic radius. This increase compared with a 24 per cent increase in freight revenues achieved by the New England railroads during this period, which was fractionally greater than that enjoyed by the railroads of the country as a whole.

While the motor carriers throughout the country, which operate almost entirely on the railroad basis of rates—and hence are tempted to go far beyond the intrinsic economic radius of trucks—improved their gross revenues approximately 30 per cent from 1938 to 1940, their net operating revenue increased only about 200 per cent, as compared with a 600 per cent increase in New England.

It is also significant that the New England operators maintain a much wider margin between the *cost* per truck-mile and *revenue* per truck-mile than obtains in the rest of the country. Their system has other economic virtues, some of which have been recognized by the attorney-examiner.

If the railroads should go through with their proposed classification revision, designed to deprive the trucks of many of the opportunities they now enjoy to "pick-and-choose" their traffic, or if the Commission should prescribe the New England basis for all other motor carriers throughout the country, it would cause a considerable alteration for the better in the character of truck operations. Since the dominant influences in the trucking industry outside New England are very partial to the *status quo*, it is not surprising that they have expressed the intention of excepting to this proposed report.

Below — One of the Line Changes Along Cajon Creek, in California — Note How the New Line Is Being Moved In, Rip-Rapped, and Protected With A Rail-Type Fence

Above—This Section of Concrete Blanket in Mojave Gap, Arizona, Is Carried 30 Ft. Below Stream Bed and Extends to a Height of 5 Ft. Above Maximum High Water

Santa Fe Strengthens Lines to Fight Flood Waters

Changes in alinement and special protection in rip rap, rail fences, steel jetties, concrete blankets and other forms on Coast lines add greatly to security of the property against damage

Part I

TO provide greater security against floods, washouts and slides in the mountainous territory which it traverses in southern California and elsewhere in the West, the Atchison, Topeka & Santa Fe has carried out an extensive program of roadbed protection work in recent years, adopting a wide range of effective measures to this end. The more important of these measures include line changes, channel changes and a variety of forms of jetties, dikes and other bank protection, the latter including the extensive use of rip rap, with or without rail toe fences; systems of steel jetties to retard the flow of flood waters adjacent to embankments; stone-filled rail-crib dikes to deflect the current away from fills and bridge abutments; and concrete blankets to prevent the wash of fills where less positive forms of protections would be inadequate.

Various Types of Bank Protection

Most of the measures adopted by the Santa Fe are not new in their entirety, or exclusive to that road. However, they incorporate a number of new or special features. Some of these methods have been costly, but experience in the territory in question has demonstrated that, in the long run, it is the less-than-adequate measures that are the most costly. Thus, for example, while rip rap is still looked upon as an effective barrier to embankment wash, it is viewed, for even minimum requirements, in terms of selected derrick-size rock in layers at least three feet thick, carried well below the streambed.

Where the threat is more severe, and the streambed less stable, anchorage of the toe of the rip rap is considered essential by one means or another to avoid undermining and raveling. Where the threat is still more serious, especially from fast, relatively shallow water, retards or jetties have been found effective, if not essential, to slow down the water before it strikes the protected face. Even this arrangement has proved inadequate in deep fast water, and where this condition is likely to prevail and cannot be circumvented by a feasible line change, the road has gone to concrete embankment facings, or blankets, reinforced and deeply anchored, to prevent any possibility of undermining, topping or physical breakup under the most extreme cases of water action. In still other cases, and especially to get away from

avalanches of rock and debris carried down gullies and washes in adjacent hills, for which there is little practical remedy within the scope of the right-of-way, the Santa Fe has not hesistated to make important changes in line, to alter channels where necessary and to buttress the new sections of line as may be required to protect them against stream wash.

Line Changes Along Cajon Creek

During the last three years the road has made a number of these line changes, in each case producing not only a "safer" line, but, almost invariably, better alinement and a saving in distance, without affecting ruling grades. Among the most effective of these changes are three made along Cajon creek between Mile 62 and Mile 69, on the district between Barstow and San Bernardino, Cal.; and a fourth, at Mojave Gap, in Arizona, where the Sacramento wash passes beneath the railroad and crowds it through a relatively narrow pass.

The line changes on the Barstow-San Bernardino line were undertaken as the result of serious floods in Cajon creek in the spring of 1938, and again in 1939, accompanied by avalanches of debris from mountain washes, which interfered seriously with train service. At the most easterly of these line changes,* beginning at the east end at M. P. 62 plus 3478, near Cajon, Cal., the old line lay along the hillside on the south side of Cajon creek, crossing over the creek to the north side on a two-span through plate girder bridge approximately 160 ft. long, about 8,200 ft. from the starting point, and then swinging sharply to the right, somewhat away from the creek. In this location, the old line was buttressed by long sections of rip rap, concrete retaining walls and concrete blankets, but in spite of these forms of protection, it was damaged severely, and, in addition, was blocked by at least three large cones of debris washed out of adjacent gullies, one of which filled a 61-ft. through girder bridge opening beneath the tracks and covered the tracks themselves to a depth of 16 ft. Another of the cones choked a 40-ft. girder bridge opening and spread out over the tracks for a distance of approximately 600 ft. to a depth of 2½ to 3 ft.

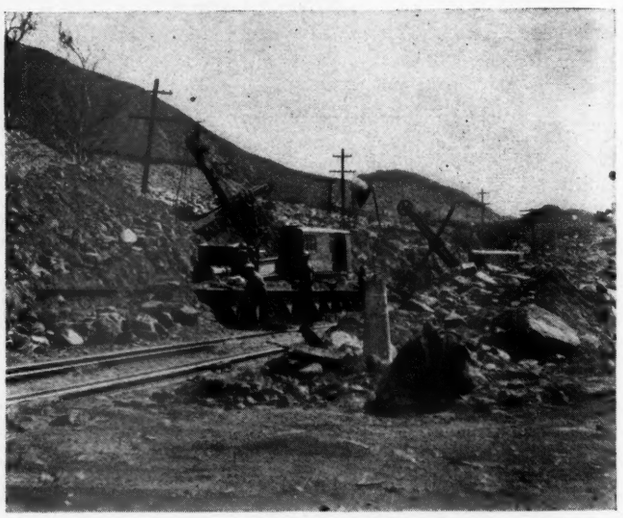
Particularly to get away from this latter condition, the line was swung to the north side of the river near the east end of the line change, on a new three-span deck girder bridge on concrete piers and abutments, each of the spans being 80 ft. long, affording 80 ft. more opening than the former crossing further downstream. Continuing on the north side in a series of hillside cuts and fills, the new line connects back into the existing line at a point 9,873 ft. from its starting point. In this change the road reduced maximum curvature from 6 deg. 15 min., to 6 deg.; eliminated three of six curves entirely, saving a total of 31 deg. 8 min. in central angle; and reduced the line distance by 160 ft. Of still greater importance, on the north side of the creek, it got away from the hillside washes which afflicted the old line. However, located on the outside of a sharp bend in the creek, the new line required even more extensive embankment protection than the old line.

To meet these requirements, protection was afforded at 12 different locations, over an aggregate distance of approximately 5,500 ft. This protection involved a total of 900 ft. of rip rap embankment face alone at two locations; 2,610 ft. of rip rap embankment facing with rail fence toe protection at four locations; 1,730 ft. of 6-in. reinforced concrete embankment blanket at four locations; and 260 ft. of a lighter concrete blanket, divided into two locations.

* Timetable directions are used throughout this article.

The next line change to the west was begun 1,761 ft. west of M. P. 65, near Keenbrook, Cal., and extends westward for a distance of approximately 2,700 ft. At this point the original line lay along the north bank of a sharp bend in Cajon creek, and, in spite of the fact that the embankment in this area had been heavily reinforced by widening, and was paved with a concrete blanket for at least 500 ft., the protection had proved inadequate to resist the scouring action of the stream at flood stage as it rounded the curve, as the result of which a large section of the embankment was washed out in the flood of March, 1938. Furthermore, lying close to the hillside flanking the curve in the creek, this section of line was subject to severe debris slides, at least three of these blocking the main tracks during the flood referred to.

Here, to get away from these recurring slides and the severe cutting action of the creek in the deep bend in its alinement, the solution appeared to be the lightening of the bend in the creek by drawing the railroad inward on a new embankment, compensating for this encroachment on the north side of the channel by extensive widening



Line Changes Along Cajon Creek Avoided Many Avalanches in Small Streams That, At Times, Clogged Bridge Openings and Inundated the Tracks

on the south side of the channel, and, incidentally, employing the excavation in the channel widening work to construct the new railroad embankment. In effecting this change, the line was thrown inward a maximum of approximately 300 ft., producing one long sweeping curve of 4-deg. maximum, which replaced essentially two compound curves, the larger and more severe of which involved a section exceeding 10 deg. and alone contained approximately 83 deg. of central angle. In addition to more favorable alinement, the line change effected a saving of 297 ft. in distance.

In spite of the compensating widening of the creek channel on the inside of its bend at this point, and the flattening of the curvature on the outside of the bend, it was recognized that the new railroad embankment would require heavy reinforcement on its stream face to prevent scour at flood stage. Therefore, as an integral part of the line change, the new embankment, practically throughout its length, was faced with heavy rip rap, protected against undermining and raveling by means of a rail fence.

The third line change in this same general area was begun 3,839 ft. west of M. P. 67 and continued westward for a distance of 4,685 ft. At this point, where the orig-

Moving Sections of Line Away From Steep Mountain Slopes Along Cajon Creek Has Precluded the Complete Blocking of the Tracks at Many Points By Debris Cones

inal line still lay along the north side of the creek, the problem was essentially similar to that which prevailed at the second line change referred to, immediately to the east, although here the problem of side gully washes was still more severe and the obvious solution lay in moving the railroad beyond the range of the debris cones formed by the material brought down these gullies during severe storms. Here again, therefore, it was essentially a matter of flattening out a bend in the line by moving it inward toward the creek and compensating for this encroachment on the creek overflow area by widening the channel directly opposite. In the change effected, in which the line was moved inward a maximum of approximately 400 ft., 78 deg. 43 min. of central angle of the old line in three right and left-hand curves of a maximum of 6 deg. 6 min., gave way to a total of 49 deg., 38 min. of central angle in the new alinement, in two curves of a maximum of 2 deg.

Moved out toward the main channel of the creek, it was evident here again that the new embankment would be subject to severe water action during flood periods, and would, therefore, require special protection. However, since the topography of the ground and the width of the creek channel indicated that the depth of flood waters adjacent to the railroad embankment would be limited, a somewhat different type of protection was provided here, this including the usual face of rip rap over approximately 4,700 lin. ft. of the embankment, flanked for about 4,000 ft. of this distance by three rows of steel jetties, anchored at intervals to deadmen buried in the embankment.

Longest Line Change at Mojave Gap

The longest line change made by the Santa Fe in recent years specifically to preclude flood damage was carried out early in 1940 through Mojave Gap in Arizona, just east of Haviland. Here, in a generally desert country, the main line, crossed from the north by Sacramento wash and then crowded through the narrows of Mojave Gap parallel with the wash, was damaged severely by a flood in September, 1939. This damage included the washing out of the main bridge, the damaging of at least one other bridge and the cutting away of long sections of the railroad embankment—all of this occurring in spite of extensive rip rap protection, supplemented by a section of concrete blanket and a masonry current-deflecting wall on the upstream side of the main bridge.

From the conditions observed at this location, it was evident that, in addition to providing more effective protection for the railroad embankment, it would be necessary to enlarge materially the existing bridge opening for Sacramento wash, a structure which involved four 80-ft. deck girder spans on masonry piers and abutments, but which provided only about five feet of underclearance for flood waters. Accordingly, the fundamental purpose of this line change was to seek a higher elevation for the line throughout, which would not only call for a more massive railroad embankment, with the track level above the reach of flood waters, but which would also provide largely increased headroom beneath the main bridge for flood waters of Sacramento wash. These purposes were satisfied in the line change built, which was begun far enough to the east to permit the construction of a new bridge over the wash with an underclearance of approximately 30 ft., without exceeding the ruling grade in this operating district.

From its starting point at the east end, the new line was carried south of the existing line to a point approximately 1,500 ft. away from it, and then swung back on a long 1-deg. curve to a new crossing of the wash on

(*Continued on page 585*)

This Bridge Over Sacramento Wash, in Arizona, is 80 Ft. Longer Than the Former Bridge at This Point, and Affords 25 Ft. More Under Clearance

Get More Miles from Present Locomotive Supply

Fuel and Traveling Engineers' report suggests measures for increasing use by 25 per cent

A GOAL of 25 per cent more miles per active locomotive day was suggested as possible of attainment for the railways of the United States by the Committee on the Utilization of Locomotives of the Railway Fuel and Traveling Engineers' Association in its report before the meeting of the association at Chicago on September 23 and 24. The report suggested a number of measures which can be taken to help in attaining this objective. An abstract of the report, which was prepared by the committee under the chairmanship of A. A. Raymond, superintendent fuel and locomotive performance, N. Y. C., follows.

It has frequently been reported that the administration at Washington is very much concerned about the possibility of the railroads not being able to handle all traffic offered. The Association of American Railroads, Ralph Budd, and other officers have repeatedly called to our attention that it may be necessary to handle up to 25 per cent more business. We know we can handle our present business. It may be that the railroads as a whole will not be required to handle such an increase, and yet in certain territories that increased business may be presented. It would seem, therefore, that consideration should be given as to whether it is possible to obtain 25 per cent more use of our present locomotive plant and what means are required to obtain that use.

The July, 1941 reports from the 13 largest railroad systems indicate that the following mileages were made by the locomotives each road had in the service indicated.

	Passenger	Freight	Switch
The two roads obtaining the most miles per active locomotive day	300	145	90
The next group of four roads	240	125	84
All roads in the United States	196	117	78

Considering that passenger trains average 50 m. p. h. and freight trains 25 m. p. h., and, of course, switch engines 6 m. p. h., it can readily be calculated from the above that on all of the roads in the country, the passenger and freight engines are working 4 to 5 hours a day, and the switch engines, 13 hours.

Further, taking the performance of the two roads that obtain the most miles per day, we find the passenger and freight engines working six to seven hours, and the switch engines working fifteen hours. That is, these roads have obtained in road service over 40 per cent more use, and in switch service 15 per cent more use, and when I tell you that the Santa Fe and Union Pacific are the roads obtaining the best mileage in passenger and freight service, you will, at once, recall that these roads have, in many instances, been the pioneers in developing long, through locomotive runs.

Going back to the figures for all of the roads, 196 miles in passenger service, will indicate to us perhaps a run over two short divisions and in freight service a run over one division per locomotive per day. It would seem that, even taking the average of all of the engines, it would be possible by close co-ordination to obtain more than this mileage.

There are, roughly, 34,000 active locomotives in passenger, freight and switch service. To increase the motive power capacity by purchase it would require about 8,500 locomotives and they would cost about $160,000 apiece, which amounts to the astounding figure of $1,370,000,000.

That's only the locomotives themselves. It would require shops, facilities, etc., to take care of this tremendous increase in number of units. Monthly, quarterly and annual inspections are based on the number of units, rather than the mileage obtained per unit. Such an increase, of course, is impossible.

Getting More Miles from Active Locomotives

Through Runs

A study should be made of each yard operation, to see how many freight trains run through the yard in approximately an hour, and on those trains, the engines should be run through. Having these through runs lined up, a study should be made of the rest of the trains arriving and leaving the yard to see if it is possible to match them up so that the departing train will use the engine from a train that has arrived within an hour or an hour and a half.

Then all of a type of power through the enginehouse should carefully be charted to see if the enginehouse foreman "sells out" at least once a day; that is, if he uses everything in the house at least once during the 24 hours (excluding the locomotives held for repairs taking 24 hours or over and possibly a protection engine which he can call on in case some of his regular engines fall down).

In general, it is possible, with the through runs, to put engines back in service after, say, 30 minutes at the enginehouse. If they follow the regular course of coming in on one train and going out on another, it will be found that the turning time may average around five hours.

Then, all of these arrangements having been made just as far as is consistent with good practice, a study should be made of the other runs, to see if it is possible to get the engine from the yard to the enginehouse more promptly, or if it is possible to call the engine closer to the departing time of the train, so as to eliminate as much of the yard delay as possible.

This scheme, worked out at various terminals, has been widely praised by enginehouse foremen, because they say that, when five or six trains are approaching, previously they had to scurry around and get five or six engines ready, and now they can wait until the first engine arrives, put the gang on her and promptly put her back to work; then, when the next engine comes, they work on her, which is much simpler than producing a half-dozen engines and then having five or six lying around the house for hours, until you can get them back to work.

The superintendent, with his trainmasters and yardmasters, will assist in lining up these matched runs.

The next study should be the type of power. Frequently it is found that a lighter engine is held for a

light job while there are heavier engines lying at the enginehouse because of the spacing of trains, so that in the last analysis, this heavy engine could be used for the light job, and the lighter engine eliminated entirely.

There frequently is a difference of opinion as to whether the enginehouse actually sells out once during the 24 hours. That matter doesn't require any argument; if the engines are used last in, first out, any surplus power will automatically be passed by and, by it's continued presence in the enginehouse, will demonstrate that it is surplus.

Coal

Many times it is necessary to replace an engine on the train because the arriving engine doesn't have enough coal to go through and the coaling facilities are so far away that the engine can't be returned to the train in time to make the present fast schedules. In that case, it is suggested that a small coaler be placed at a convenient location in the yard so that, when the engine comes with a train, it can be coaled while still coupled to the train. These small coalers have been costing under $1,000, and it may cost another $1,000 or so to arrange the coaling tracks, so that a complete installation of a coaler that will put on a ton a minute, should not run much over $3,000. This surely doesn't represent much investment, compared to $170,000 for a locomotive. If it is thought that the ton a minute is too slow, the same type of equipment can be obtained that will put on two tons a minute, or two of these coalers can be set up in parallel with a slight increase in cost.

Water

It is generally cheaper to put a water plug at a convenient place in the yard than to lose the services of an essential locomotive. The total cost of the facility will depend on how many locomotive hours can be saved. If we have, say, five runs and can save five hours per locomotive, this is a total of twenty-five hours a day—a saving of about one locomotive. The saving is not, alone the first cost of the locomotive but the cost of at least $200 a month that it requires to keep an extra unit in service.

Maintenance

With through running engines, the local roundhouse foreman, no longer has a general knowledge of their condition and many times feels reluctant to mark an engine out for a definite time until after its arrival and complete inspection.

It is necessary to develop some general supervision over the engines, which will provide adequate maintenance at regular intervals.

This requires a competent inspection organization and well seasoned foremen, who, from long experience, will know the essential work that is required on a locomotive and who have made a study of the period at which this work should be performed. This should be handled through an organization that is in touch with the entire territory, so that the work can be done after the locomotive has performed a certain amount of service and records of that performance returned to the maintaining enginehouse for their information and guidance.

Reports indicate that to support active locomotives on the road it will require about nine per cent more locomotives which will be found in the enginehouses undergoing periodic repairs. Many times this percentage creeps up but capable supervision has indicated that it can be held as low as nine per cent.

Summary

What are we doing? Keeping the machine working about 20 per cent of the time.

What should we do? Keep it working at least 25 per cent of the time. This seems a first class way of showing that the railroads are capable of doing all of the work that the people of the United States require, and that they are capable of doing it promptly and effectively. It will save the expenditure of tremendous sums of money for the purchase of new equipment, if that were possible, and it will save very substantial sums in maintenance.

All that is required to do the job is the expenditure of a little gray matter in clearly thinking through the details of the problem.

The report was signed by A. A. Raymond (chairman), superintendent fuel and locomotive performance, N. Y. C.; H. W. Bates, assistant master mechanic, C. M. St. P. & P.; E. J. Cyr, master mechanic, C. B. & Q.; E. W. Erisman, general road foreman engines, Wabash; S. L. Forney, road foreman, M-K-T; O. R. Pendy, general roundhouse foreman, N. Y. C. & St. L.; W. E. Sample, assistant chief motive power and equipment, B. & O., and E. G. Sanders, fuel engineer, A. T. & S. F.

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Photo by Robert Hage

A Freight Train on the National Railways of Mexico Near Monterrey, an Important Junction Point on the Line Between Laredo and Tampico

Signal Section Holds Annual Convention

Discusses economics of signal systems, changes in practice and new developments in transportation

G. K. Thomas,
A. T. & S. F. Chairman

THE forty-seventh annual convention of the Signal Section, A. A. R., was held at Colorado Springs, Colo., on September 30 and October 1 and 2, with G. K. Thomas, signal engineer, Atchison, Topeka & Santa Fe, presiding as chairman. In addition to the chairman's opening remarks, addresses were made by Charles E. Denney, president of the Northern Pacific; Samuel O. Dunn, chairman of the board, Simmons-Boardman Publishing Corporation and editor of the *Railway Age;* and W. McCarthy, trustee, Denver & Rio Grande Western.

Abstract of Address by Chairman Thomas

Shortly after calling the convention to order, Mr. Thomas referred to the fact that this meeting was the thirtieth anniversary of a similar meeting held in Colorado Springs on October 10, 11 and 12, 1911. Therefore, he said, it seems proper at this time to review the developments in railway signaling which have occurred during the last 30 years, and to discuss the part which the Signal Section has taken in this important phase of railroad work.

"In 1911," he pointed out, "the railroads of the United States had automatic block signals on about 17,700 miles of road; they had 2,500 interlockings, 2,000 of which were mechanical and 500 power-operated. At present 65,700 miles of road are equipped with automatic signals, and there are 4,500 interlockings, of which 1,880 are mechanical, 2,240 are power operated and 380 are automatic. About 7,900 miles of road are equipped with automatic train control, 4,200 miles with cab signaling, and 1,900 miles with centralized traffic control. Highway crossing protection is in service at approximately 25,000 crossings. Altogether, probably four times as much signal equipment is in use today as in 1911.

"Our Manual of Recommended Practice, first printed following the meeting in Colorado Springs 30 years ago, now contains 208 sections and 281 drawings, and is in constant use on all the railroads. The manual contains specifications and instructions for practically all types of systems and apparatus used in railway signaling, and in order to be of the greatest value, this must be kept up-to-date by continuous work on the part of the various committees to take care of improvements as they are developed. The section has also produced an educational series of chapters on American Railway Signaling Principles and Practices, the first of which was published in 1927. Twenty-three chapters have now been completed, comprising a valuable course of instruction in modern railway signaling.

"During the last 12 months, all of our committees have been active, and have produced many interesting and useful reports. I encourage study and discussion of these reports, because it is through such discussions that we can arrive at the best methods, and give the greatest service to the railroads, in order to increase their efficiency. We can thus contribute to the safe handling of fast transportation, which is of the utmost importance not only to the general welfare of the people of our country, but also to the most vital issue of the present day, which is national defense."

Mr. Denney Was Chairman 30 Years Ago

When introducing Mr. Denney, Chairman Thomas explained that Mr. Denney was president of the Railway Signal Association, predecessor of the Signal Section, at the convention held in Colorado Springs in 1911, at which time Mr. Denney was signal engineer of the Lake Shore & Michigan Southern, now a part of the New York Central System. An abstract of Mr. Denney's address follows:

"It has been difficult, since leaving the signal department, for me to keep from trying to impersonate the signal engineer on the railroads with which I have been connected, but I assure you that trespassing in the signal department has been prompted only by a desire to assist in arranging tracks and providing signals which will meet the most exacting operating requirements so that he who runs may read the indications quickly and accurately, to the end so that speed may be increased with safety. We learn by experience and some lessons stay with us. The first test run for the 20th Century Limited was made just after I was appointed assistant signal engineer of the Lake Shore & Michigan Southern in 1905, and within a month the train ran into an open switch at Mentor, Ohio. The engineman did not see the open switch because the switch stand was located directly behind a stand pipe. Why was it so located and no suggestion made as to relocating it? Because no one, through the years, had been sufficiently trained or alert to recognize the dangerous condition. And why was a facing point switch necessary, on a multiple-track line, to reach a freight house? Study after the accident showed that this and more than 150 other facing-point switches were not necessary, and they were removed. You can understand why this lesson has prompted ques-

tioning the necessity for each switch and crossover and arranging for their elimination unless full consideration shows that its installation would be authorized today if it was not in place. The application of this principle on four railroads has been profitable from the standpoint of increased safety.

"A successful railroad organization is dependent upon co-operation within a department and between departments. It was not possible as signal engineer to observe conditions frequently on all parts of the line, but it was surprisingly easy to find an engineman or two on each division who would drop me a note about a poor light or any other condition which he thought could be improved. Enginemen making such reports were working in their own interest but are also helpful to other enginemen, to the signal department, and consequently to the railroad, by decreasing the possibility of accidents. I hope that this is typical of the kind of co-operation or working together that exists on the railroads you represent.

"At the 1912 meeting, I had the pleasure of submitting the report on a uniform system of signals. The unanimous report was, in my opinion, the outstanding accomplishment of the Railway Signal Association from an operating standpoint. It demonstrated that an agreement can be reached on almost any problem if qualified men with conflicting opinions really try to reach an agreement. I have always been in favor of organizations which bring men in the same branches of railroad work together at reasonably frequent intervals, not only that the work in the hands of the association may be advanced, but in order that the individual may get the benefit of the views of others in his branch of the service.

"Some of you have heard me comment on the desirability of training men in the signal department for service in other branches of railroad, particularly transportation. This can be brought about to the extent that those in the signal department are trained to study signaling from the standpoint of operating requirements. The business of railroad operation is the handling of cars and trains, and the signal department can be made an excellent training ground. I, therefore, want to repeat the suggestion that each signal engineer should make it his business to qualify the men under him, particularly the young men, for service in the transportation department of a railroad."

Address by Samuel O. Dunn

Chairman Thomas requested Mr. Denney to introduce Mr. Dunn. Mr. Denney explained that he had had the pleasure of introducing Mr. Dunn as a speaker at the convention in Colorado Springs 30 years ago, at which time Mr. Dunn made his first address to a railroad association as editor of the *Railway Age*. An abstract of Mr. Dunn's address follows.

Thirty years ago our railroads were enjoying the greatest prosperity they have ever had in their history. Traffic had increased so much that their gross earnings were 160 per cent greater than twenty years before and 80 per cent greater than ten years before, and the paramount problem was that of expanding their facilities and improving their operating methods enough to handle the still rapidly growing traffic. In 1918 and 1919 we had government operation. That was perhaps the most critical period in the history of our railroads. But the results of government operation proved highly unsatisfactory to the public, especially to shippers. During government operation and its aftermath, the total operating expenses were increased three billion dollars a year, while gross earnings increased only about two billion dollars a year; and the industry was saved from universal bankruptcy only by government financial guarantees which rendered it necessary for the taxpayers to pay a deficit of almost two billion dollars.

The return of the railways to private operation early in 1920 was followed in 1921 by a terrific decline in general business and traffic from which, however, the nation and the railways recovered speedily. Many persons are anticipating another severe decline of business after the present huge expenditures for defense are reduced. Just in passing, therefore, I call your attention to the fact that *the federal government reduced its expenditures from 19 billion dollars in 1919 to 4 billions in 1922, and that, not in spite of this, but largely because of it, the nation immediately entered a seven years' period of great prosperity.*

But during this period the railways began to be confronted with another great problem—that of increasing competition by other means of transportation, which were government-subsidized and not regulated as the railways were. While this competition was increasing rapidly, we entered the most profound and longest depression in all history. I cannot discuss here the reasons why this depression was so long, but again, just in passing, I call your attention to five facts. First, the decline of business in 1921 was relatively greater than in 1930. Second, the government greatly reduced its expenditures during that decline of business. Third, the government Railroad Labor Board authorized reductions in railway wages in 1921 and 1922 and wages were reduced in other industries. Fourth, these developments were followed by a period of prosperity. Fifth, in 1933 and subsequently, in the midst of depression, the government greatly increased its expenditures, caused advances in the wages paid by the railways and other industries, and the depression lasted until this year. You can't find any evidence in those irrefutable facts to support the view that government expenditures and interference with private enterprise tend to cause prosperity.

Our great railroad industry often has been criticized by the uninformed for having been unprogressive, and yet I venture to maintain that the record it has made during the last 30 years, in spite of great difficulties, and the record in rendering public service that it is making in 1941, demonstrate as remarkable progress and achievement as have ever been made by any industry in the world. The investment in our railways 30 years ago was about 15 billion dollars, and is now about 26 billion. Their mileage of lines has not increased much, the additional investment of 11 billion dollars having been made almost entirely in improvements to enlarge the capacity of lines already existing, to improve service to the public and to effect economies in operation. The tremendous cumulative effect of all the investment and improvements made has never been so strikingly and conclusively shown as by the way in which the railways have been meeting the unprecedented increase in demands for service made upon them this year.

The increased investment and capacity are proving a godsend to the nation, now that developments due to preparations for defense are taxing railway capacity to the limit. To provide capacity for handling the still-increasing traffic, the railways are confronted with the necessity of making a largely increased investment in equipment, and also in signaling and other facilities necessary to expedite the use of equipment.

The great significance of this record of progress should not be ignored at the present time when the trend is so strongly away from private enterprise, for it is a record made by an industry created and managed entirely by private enterprise. All the capital investment, which has

rendered practicable the improvements and increases of service, has been private capital. All the economies that have rendered it possible for the railways to stand an increase in their taxes from less than 100 million dollars in 1911 to about 450 million dollars this year, and to stand an increase in the average annual wage of their employees, have been made possible by private capital.

What of the future? For more than a year—that is, ever since the great defense effort began—there have been persons in Washington who have been criticizing railway managements upon the ground that they are overestimating railway capacity; that they are not ordering enough equipment; that there will be a large shortage of cars this fall; that there will be a still larger shortage next year; and intimating that it will be necessary again to adopt government operation to enable the railways to meet the demands made upon them for service. Their critics have said that if the railways get through this fall without a large car shortage it will be a miracle.

Well, we are seeing that miracle worked right now. The fall peak of traffic has been almost, if not actually, reached. But, although the railways thus far this year have carried more tons of freight one mile than in any preceding year in their history, there is as yet no general shortage of cars and no prospect of one this fall. This is true because of the progress that has been made in railroading. Average tons moved one mile per car per day increased from 549 in May, 1929, to 746 in May, 1941, or 36 per cent. A corresponding increase has been made in the efficiency of locomotives and in their use. Equally important have been the improvements in other facilities, including signaling and centralized traffic control, without which this speeding up of the use of equipment could not have been accomplished.

Those who make estimates in Washington for the Office of Production Management and other government departments and bureaus predict there will be a further great increase in production and traffic demands in 1942, and are trying to make everybody quake in their boots lest the railways will be unable to meet the demands made upon them next year. Well, whether the railways will be able to meet those demands will not depend upon railway managements, but upon whether government will afford railway managements opportunity to meet the demands. The railroads and those who manufacture for them will need large amounts of materials. They have needed them this year; and the government is responsible for the fact that the railways today lack 20,000 of the new freight cars they ordered prior to June 1, 1941, and expected to have this fall, because the government failed to make good on its promise that it would so handle priorities as to enable car builders and the railways to get the necessary materials.

It would be extra hazardous to try to look farther into the future. A new definition of an optimist going the rounds is, "A man who believes that the future is uncertain." According to that definition I am an optimist, because I am unable to feel certain, in spite of many ominous indications, that our railways and our country are doomed. I have seen the time when the future of our railways looked much darker than now. In December, 1917, the Railroads' War Board brought from a conference with President Wilson his announcement that he would soon adopt government operation. A few evenings later I attended a press conference at which Secretary McAdoo, the new Director General, told what he thought about railway conditions and what he was going to do about them. When asked my opinion, I said, "These railways are coming back to private operation, because if that man does what he said he will, and I think he will, he will put them back into private operation." Almost exactly a year later, President Wilson announced to Congress that he was going to return the railways to private operation.

On the basis of the record of achievement and progress I have reviewed, I have great confidence in the ability and wisdom of railway managements. I also have as much confidence in the ignorance and folly of a lot of people in Washington now as I had in the ignorance and folly of one man there almost twenty-four years ago. With the ability and wisdom of railway managements, aided and abetted by the folly of a lot of ambitious and sophisticated fools in Washington, I expect to see our railways survive, and once more prosper as an important and essential part of the private enterprise system of this country, because I believe that in due course we will again have a government which will realize that we can't save political democracy without saving private enterprise, and that the people have become determined to save them both.

Brief Abstract of Address by Wilson McCarthy

It seems to me that the railroad signal tells the whole story of transportation today, if we read the changing lights correctly. Up and down the tracks, across America, the signals just now are green. It's clear ahead. Railroads everywhere are carrying capacity loads.

Few industries can look back over the last 20 years to a record which has been filled with so many improvements. I say the last 20 years because it has been only since the last war that American railroads have faced competitive conditions which have forced them to do everything possible to reduce costs and improve service. In terms of money, since 1923 our railroads have spent approximately $9,500,000,000 for improvements. Of this amount, roughly 45 per cent went into new equipment and the remaining 55 per cent for other facilities. The results of this huge expenditure are well known.

In the matter of operation, signal engineers have played no small part. Competition has emphasized the importance of speed. No recent development has contributed more directly to the elimination of delays in the movement of trains than signals in their various forms. Centralized traffic control has expedited road movement. Car retarders, communication systems, and flood lighting speed the handling of cars through yards. Thanks to these advances, the transportation of freight is emerging into a new day in which the average over-all "time-speed" of cars is more closely approaching the road speed of freight locomotives. You will be interested to know that on September 18, the Rio Grande put into operation its fifth major installation of centralized traffic control over the 26½-mile stretch between Dotsero, Colo., and Chacra. This unit will give this single track 75 per cent of the efficiency of a double track. (After Mr. McCarthy gave his address, news was announced that materials have been ordered to install C. T. C. on 56 miles betwen Chacra and Tunnel, thus completing C. T. C. on the entire 108 miles between Dotsero and Grand Junction.)

In view of the thought we are giving to the effect of new tax legislation on our pocketbooks, I believe it pertinent to point out that in 1940 railroad taxes in this country amounted to $396,354,000—more than $1,080,000 a day. While railroads on their own initiative have made tremendous improvements during the last 20 years, their subsidized highway, airway and waterway competitors have also been making progress. In this period some 22 billion dollars have been spent for state highways, rural roads and city streets. This right-of-way for our competitors was built by the taxpayer, and a not

inconsiderable portion of the money came from railroad taxes.

These other forms of transportation are here to stay. Railroads generally are co-ordinating motor transportation into their own systems and are finding these co-ordinations to be profitable. Railroads were slow in realizing what could be done in this field. But what I want to bring home to you is the fact that the railroads have done the job which they have been called upon to do, without government subsidy. I have felt for a long time that the railroads should get into the air service, if possible.

In other words, if we keep in the transportation picture, it is only because we are prepared to serve the general public in its demands.

Can we meet these transportation changes, and can we adjust our plant to be the leader in whatever new future the transportation field demands? If it is a further extension of bus and motor transportation, why shouldn't the railroads at least have the first opportunity to integrate into their systems the demands of a new exacting public? If it is in the air, by reason of the great development that will occur there, why shouldn't the railroads occupy this field as a part of their transportation system? —that is, assuming they are sufficiently abreast of the times and do not lag behind in this field of transportation.

Our plant should be so flexible, from the standpoint of labor and management, that these adjustments can be made with great alacrity. Facilities which are obsolete and out-of-date and which are unproductive should be eliminated quickly and without resistance. It is transportation that we are all *selling*, and whether you push a pen, whether you are a brakeman, a conductor or a signalman, the whole purpose of it all is to sell something just like the merchant has to sell his stock before it becomes obsolete, shelfworn and out-of-date; and, therefore, my appeal today is to let the railroads engineer a transportation pattern which will fit every form of transportation into its proper place. I think there is enough vision, experience and courage in the field of transportation to trust the railroads to do an up-to-date modern job, in a way that will preserve private industry; in a manner that will protect American labor in the American way, and without becoming burdensome to the taxpayers of this country. In a spirit of optimism, I think our next signal will display a green aspect.

Report on Economics of Signaling

The report of the committee on Economics of Signaling included extended statements on various phases of this subject, a few of which are abstracted here.

Freight Train Time Saved by C. T. C.

A. A. R. Signal Section 1936 Proceedings, Vol. XXXIV, p. 58-60, contain a list of 19 centralized traffic control installations where the freight train time saving varied from 0.27 to 4.29 min. per freight train mile, with an average of 1.38 min. Included in the report is a statement that if the time saving up to 40 trains per day is plotted on a trend curve, the curve shows that the percentage of freight train time saved varies nearly as the numbers of trains per day. As a part of the 1941 report, the committee presented information on two additional C. T. C. installations.

Pennsylvania, Machias, N. Y.—Jamison Road

C. T. C. system on 21 miles of single track and 7 miles of double track, resulted in the following improvement over manual block:

Number of trains November 1940	Direction	Average time, minutes Before	After	Average time saved per train, minutes
353	South	74	56	18
505	North	76	51	25

Summary

Total freight trains per month 858
Average freight trains per day 28.6
Average time saving per freight train, minutes 22.12

$353 \times 18 = 6{,}354$
$505 \times 25 = 12{,}625$
Total $18{,}979$
$18{,}979 \div 858 = 22.12$

Average freight train time saving per mile, minute 0.79
$22.12 \div 28 = 0.79$
Per cent of freight train time saved 29.4
$18{,}979 \div 353 \times 74 + 505 \times 76\ (64{,}502) = 29.4$

A saving of 29.4 per cent in time for a total of 28.6 freight trains per day shows that this installation follows very closely the trend curve developed in the report presented at the 1937 annual meeing.

Pennsylvania, Hudson, Ohio—Arlington

C. T. C. system on 12 miles of single track resulted in the following improvement over manual block:

Number of trains, 10 days in February 1941	Type and direction	Average time, minutes Before	After	Average time saved per train, minutes
29	Preference, north	32	32	0
13	Extra and local, north	43	34	9
28	Preference, south	56	32	24
14	Extra and local, south	43	24	19

Summary

Total freight trains for 10 days 84
Average freight trains per day 8.4
Average time saving per freight train, minutes 12.56

$13 \times 9 = 117$
$28 \times 24 = 672$
$14 \times 19 = 266$
Total $1{,}055$
$1{,}055 \div 84 = 12.56$

Average freight train time saving per mile, minutes 1.05
$12.56 \div 12 = 1.05$
Per cent of freight train time saved 28.8

$$1{,}055 \div 3{,}657 \left\{ \begin{array}{l} 29 \times 32 + \\ 13 \times 43 + \\ 28 \times 56 + \\ 14 \times 43 \end{array} \right\} = 28.8$$

A saving of 28.8 per cent in time for a total of 8.4 freight trains per day on this installation shows a higher per cent of time saved than estimated by a trend curve, the increase being due to local operating conditions.

Train Time Saved by Automatic Signals

Table III, appearing on page 19 of Chapter III—Principles and Economic Phase of Signaling of American Railway Signaling Principles and Practices, shows a list of 11 automatic block signal installations on which the freight train time saving varied from 0.31 to 3.44 min. per freight train mile, with an average of 0.93 min.

The committee submitted information on two additional automatic block signal installations, as follows:

Pennsylvania, Wampum Jct., Pa.—Rochester

Automatic block signals on 16 miles double-track freight line, resulted in the following improvement over manual block:

Number of trains September 1940	Direction	Average time, minutes Before	After	Average time saved per train, minutes
110	East	80	60	20
116	West	82	62	20

Summary

Total freight trains per month 226
Average freight trains per day 7.5
Average time saving per freight train, minutes 20
Average freight train time saving per mile, minutes 1.25
$20 \div 16 = 1.25$
Per cent of freight train time saved 24.7

$$\frac{226 \times 20}{110 \times 80 + 116 \times 82} = 24.7$$

The time saving per mile of 1.25 minutes is higher than the average of the 11 installations previously reported and is particularly interesting in view of the light traffic involved on a double-track installation.

Pennsylvania, Conpitt Jct., Pa.—Kiski Jct.

Continuous coded cab signals (without automatic wayside signals) on

49.9 miles double-track freight line, resulted in the following improvement over manual block:

Number of trains July 1940	Type and direction of trains	Average time Before	Average time After	Average time saved per train, minutes
108	Preference, east	2 hr. 32 min.	2 hr. 24 min.	8
94	Preference, west	2 hr. 21 min.	2 hr. 1 min.	20
67	Coal and empty, east and west	3 hr. 48 min.	3 hr. 12 min.	36
44	Ore, east	3 hr. 56 min.	3 hr. 47 min.	9

SUMMARY

Total freight trains per month 313
Average freight trains per day 10.1
Average time saving per freight train, minutes 17.8
$108 \times 8 + 94 \times 20 + 67 \times 36 + 44 \times 9 = 5{,}552$
$5{,}552 \div 313 = 17.8$
Average freight train time saving per mile, minute 0.36
$17.8 \div 49.9 = 0.36$
Per cent of freight train time saved 10.0

$$5{,}552 \div 55{,}330 \left\{ \begin{matrix} 108 \times 152 + \\ 94 \times 141 + \\ 67 \times 228 + \\ 44 \times 236 \end{matrix} \right\} = 10.0$$

A time saving of 10 per cent, while lower than that for the Wampum Jct.—Rochester, Pa. installation, is comparable with other light traffic territories. It will be noted that the highest time saving per train was made on the coal and empty trains.

Economic Results of Automatic Highway Crossing Gates

The Chicago, Milwaukee, St. Paul & Pacific installed automatic short-arm electric crossing gates at Narragansett avenue, Chicago. In addition to four main tracks, eight yard tracks cross the street. Narragansett avenue is an important north and south traffic artery and is the route of a trackless trolley line. Protection formerly consisted of flagmen employed by both the railroad and the street railway.

The new crossing protection consists of three short-arm electric gates with A. A. R. flashing-light signals so located as to protect the right-hand lane of traffic approaching the crossing. Two of the gates protect all the twelve tracks and the third gate serves as an intermediate signal to provide localized protection for the four main tracks at the north side of the crossing. Automatic track circuit control is provided for the two passenger mains with manual control for the freight mains and yard tracks. Color-light dwarf signals governing movements over the crossing on the freight mains and two principal yard lead tracks are interlocked with the street crossing protection so that gates must be lowered before trains may proceed over the street on these tracks.

On the six remaining yard tracks trains are required to come to a stop before crossing the street and must not proceed until the gates are lowered.

ECONOMIC STATEMENT

1. Cost of Installation:		
(a) Chargeable to capital investment	$5,477.21	
(b) Chargeable to operating expenses including retirements	37.26	
(c) Total		$5,514.47
2. Gross Saving per Annum:		
(a) Maintenance and operation, old facilities		$5,903.60
3. Deductions from Gross Saving:		
(a) Maintenance and operation, new facilities	$3,201.80	
(b) Interest charges at 6 per cent on total cost	330.86	
(c) Total		3,532.66
4. Net Saving per Annum		$2,370.94
5. Annual Return over and above 6 per cent Interest Charges on Total Cost		43.0%

Economics of Revision of Automatic Block

The Chicago, Milwaukee, St. Paul & Pacific rearranged automatic block signals on two sections to provide greater braking distance to meet requirements of higher train speeds. On the double-track line between Pacific Jct. (Chicago), Ill. and St. Paul, Minn., approximately 405 miles, the rearrangement resulted in the removal of 94 semaphore signals which saved annual repairs estimated to cost $3,179 and primary battery renewals and purchase of alternating current power estimated at $750. On the double-track line between Bensenville (Chicago) and Savanna, Ill., approximately 121 miles, the rearrangement resulted in the removal of 20 semaphore signals, saving estimated repairs at a cost of $816 and battery renewals and current saved estimated at $410.

The reason for the increased cost of the installation between Chicago and St. Paul, as will be noted by difference in amounts of the economic statement for the two projects, was due to the large amount of readjustment necessary in highway crossing protection circuits.

The Illinois Central made a study of braking distances over its entire signaled territory to provide stopping distances for higher operating speeds. Between Branch Jct., Ill., and Cairo, approximately 115 miles of double track, automatic block signals were rearranged to provide longer braking distances. This involved relocation of 7 signals, extending overlap control of 35 signals and permitted the removal and retirement of 24 signals, which was completed in 1937. The removal of the signals saved repairs to 24 signals, 47 relays, 72 insulated joints, primary battery renewals, purchase of alternating current power, and other miscellaneous apparatus, amounting to $974 per annum.

C. M. St. P. & P.—Bensenville, Ill., to Savanna

1. Cost of installation:		
(a) Chargeable to capital investment	$1,279.00	
(b) Chargeable to operating expense	83.00*	
(c) Total		$1,362.00
2. Gross saving per annum:		
(a) Operating expenses	$410.00	
(b) Maintenance repairs eliminated	816.00	
(c) Difference in depreciation value of retired and new facilities	761.00	
(d) Total		$1,987.00
3. Deduction from gross saving:		
(a) Interest charges at 6 per cent on total cost	$82.00	
(b) Total		82.00
4. Net saving per annum		$1,905.00
5. Annual return over and above 6 per cent interest charges on Total cost		140%

* Value of facilities retired—$16,506.00.

Illinois Central—Branch Jct., Ill., to Cairo

1. Cost of installation:		
(a) Chargeable to capital investment	$2,954.00	
(b) Chargeable to operating expense	1,702.00*	
(c) Total		$4,656.00
2. Gross saving per annum:		
(a) Operating expenses	$635.00	
(b) Maintenance repairs eliminated	339.00	
(c) Difference in depreciation value of retired and new facilities	1,027.00	
(d) Total		$2,001.00
3. Deductions from gross saving:		
(a) Added maintenance expense	$36.00	
(b) Interest charges at 6 per cent on total cost	279.00	
(c) Total		315.00
4. Net saving per annum		$1,686.00
5. Annual return over and above 6 per cent interest charges on Total cost		36.2%

* Value of facilities retired—$23,493.00.

Discussion

The report of Committee I was presented by W. S. Storms (Erie) chairman. Referring to the report on the costs involved in stopping trains, Mr. Storms explained that the subcommittee, during the past year, has studied considerable material to confirm the charts and formulae presented in previous years by this committee. The subcommittee has had the collaboration of A. R. E. A. Committee 16, and much friendly comment as well as adverse criticism. The subcommittee conducted a study of another method and findings of the costs involved in stopping trains as compared with its own, and no great divergence in the costs of stopping trains was observed when calculated by either method.

The subcommittee agreed that the charts and formulae developed by Committee I are more suitable and easier of application to the problems of the costs of stopping trains, than any other method yet published.

Mr. Storms explained that the report on the economics of coded track circuit control was quite general in scope, and that in the course of time, as more detailed information becomes available, analysis will better show the economies in money values. Study of the subject will be combined. The various

other items in the report of this committee were presented as information, and were so accepted.

Signaling Practice

The Committee on Signaling Practice presented requisites for signal protection at spring switches, and explanations of noteworthy changes in signal practice. One explanation dealt with the use of one pair of line wires for handling C.T.C. controls and indications as well as conventional telephone communication, and, furthermore, carrier telephone or telegraph circuits can be superimposed on the same wires. For example, the first cost of installing C.T.C. can be reduced by utilizing existing line wires for the control system. If no line wires are available, a new pair of wires can be installed to handle not only the C.T.C. but also various forms of telephone and telegraph communication.

A second item discussed systems for communication between the humpmaster and the engineman of locomotives used in gravity-type freight classification yards, or between a yard conductor and enginemen in a flat yard. The communication may be one-way, i.e., from the humpmaster to the enginemen, or both ways. A third item explained the practice of flashing a lamp in a conventional three-aspect signal, as a means of providing a fourth aspect. For example, if yellow is used as the Approach aspect, the yellow lamp, when flashed, could serve as the Approach-Medium aspect.

Discussion

When presenting the requisites for signal protection at spring switches, D. W. Fuller (A. T. & S. F.) expressed an opinion that where spring switches are installed on main-line high-speed tracks, complete signal protection, including approach signals, should be installed. H. G. Morgan (I. C.), committee chairman, agreed with Mr. Fuller, but he explained that the committee was of the opinion that added protection of that nature should not be specified in the requisites, and that the requisites, as presented, represented minimum protection rather than all that might be provided under special circumstances. Following extended discussion, the committee withdrew its recommendation that the requisites be accepted for submission to letter ballot for inclusion in the manual, and was instructed to continue work on this subject.

Other Committee Reports

The Committee on Automatic Train Control and Signaling presented a tabulation of the automatic train control and cab signaling in service, and also a tabulation of the applications made by the railroads to the Interstate Commerce Commission for permission to make changes in signaling, in accordance with the so-called Signal Inspection Act.

The Committee on Highway Crossing Protection presented a statement that 3,004 protection projects of the Federal Aid Grade Crossing Program had been completed up to January 1, 1941, and that on the same date 220 such projects were under construction and 381 approved for construction. This committee presented a discussion and sketches of crossing protection recommended where two parallel railroad lines are crossed by one highway, separate sets of signals being suggested where the tracks are separated more than 150 ft., separate sets of signals with a train on either track controlling the far signal on the other track for distances between 101 and 150 ft., and a single signal for each direction to the approach of both tracks as a whole for distances under 100 ft.

The Committee on Materials Research presented revised specifications for transformer oil and for insulating compound for use in impedance bonds, which were accepted for submission to letter ballot. Tables and extended discussions concerning the capacities available in nickel, iron, alkaline, storage batteries and various types of primary batteries at solution temperatures varying from 0 deg. to 100 deg. F., were accepted as information.

The Interlocking Committee presented revised specifications on electric locks, electro-mechanical interlocking, and centralized traffic control, as well as protection against slides and rock falls, all of which were accepted for submission to letter ballot. The Committee on Automatic Block Signaling presented revised specifications on automatic block signals and time-element relays, a report and diagram concerning the bonding to be used to prevent fires on sidings where oil cars are spotted, and a revised set of requisites for minimizing the effects of lightning on track circuits, all of which were accepted for submission to letter ballot. Explanations of methods for using line wires for transmission of telephone communication, as well as coded controls on centralized traffic control territory, were accepted as information.

The Committee on Contracts and Instructions presented sets of instructions on the maintenance and testing of automatic highway grade crossing protective systems, as well as revisions of instructions on automatic interlockings, electric locking, and time releases applied to signal apparatus. The instructions on electric locking were withdrawn by the committee and are to be rewritten in condensed form. The remainder of the instructions were accepted for letter ballot.

The Committee on Designs presented 3 new drawings of incandescent electric lamps, 22 drawings to be revised and 9 drawings to be made obsolete. Recommendations of the committee for submission to letter ballot were approved in each instance. The Committee on Overhead and Underground Lines presented revised specifications on rubber insulating tape, friction tape for railroad use, and copper-covered steel wire, which were approved for letter ballot. A discussion of the possibility of using fire-resisting coverings on wires and synthetic materials as substitutes for braid coverings on wires and cables was accepted as information. A statement in this report explained that the National Electrical Safety Code rules applying to the installation and maintenance of overhead and underground electric supply and communication lines have been revised, and will be issued in hand-book form. The committee representatives who co-operated in revisions of these rules are of the opinion that the Signal Section's interests have been adequately protected.

* * *

A Pennsylvania-Reading Seashore Main-Line Passenger Train Picks Up a Car from the Ocean City, (N. J.) Branch at Tuckahoe

Car-Building Program 50 Per Cent Below Schedule

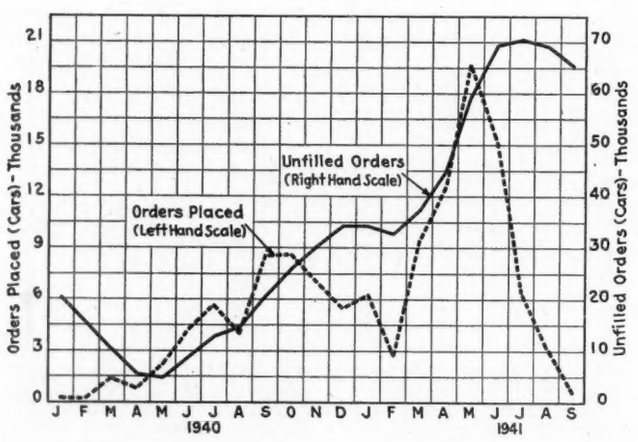
IN June of 1940, as an important part of their contribution to the national defense effort, the railroads inaugurated a sustained wave of new freight car equipment buying unprecedented in recent years. Orders were divided approximately 28 per cent to the railroads' own shops and 72 per cent to car builders. Due to the unavailability, at this time, of detailed data for all railroad company shops, this article purposes to review those orders placed with car builders only. The *Railway Age* is especially indebted to the American Railway Car Institute for its assistance in making available reports of its affiliated companies.

Orders for domestic delivery placed with car builders during the first five months of 1940 totaled 4771 cars. In a determined effort to prepare the country's transportation system to carry the weight of its mobilizing industrial strength, the railroads placed orders with car builders during the remaining seven months of 1940 for a total of 43,824 cars, or an average of 6,261 cars per month.

These orders were well spaced throughout each month of the period.

Freight car deliveries normally fluctuate widely with orders placed. As of May 31, 1940, unfilled orders on car builders' books had decreased to the year's low point of 4,752 cars, or only about one-third of one month's rated capacity output for all builders. Deliveries similarly decreased to a low of 1,478 cars in June of 1940, but thereafter increased steadily for the remainder of the year, although not at the rapid pace of orders, to 4,293 cars in December. Unfilled orders at the year-end totaled 34,205 cars.

At the beginning of the new year, 1941, based on rising estimates of car loadings, the carriers were expected to order a minimum of 100,000 cars during the year. Fear was expressed at that time, with war orders mounting rapidly chiefly in the heavy goods category requiring rail haulage, that the carriers' efforts to prepare their systems might be hindered by the establishment of priorities in the steel industry that would give a secondary rating to rail equipment orders.



By March, the number of orders had established a new monthly peak for the buying movement of 9,440 cars and the 12,478 cars ordered in April exceeded that figure. Deliveries topped the 5,000 car mark for the first time in April and unfilled orders rose to 44,707 as of the end of that month.

On May 1, the Association of American Railroads recommended to the chief executives of the railroads that the carriers increase the number of freight cars owned by 270,000 cars before October 1, 1943. The suggested increases called for 120,000 new cars before October, 1942, and 150,000 cars in the second year. It was emphasized that if the railroads retired 100,000 cars during this period, in order to provide for replacements as well as additions, that gross acquisitions would have to total 370,000 cars. These estimates were worked out jointly by Association experts and economists of the Office of Production Management. Promises were made that the government would give prime consideration to the necessity of providing materials for this equipment building program. Anxious inquiries were sent to car builders as to the volume of deliveries that could be expected, also making suggestions for the employment of extra shifts in car building plants, etc.

Domestic Freight Car Deliveries Compared with Orders and Planned Production

Data Covers Car Builders Only
January, 1940 to September, 1941

		Deliveries				
1940	Orders Placed	Number	Per cent of Rated Operating Capacity (A)	Planned Estimated Production (B)	Loss in Production (Planned Production Less Deliveries)	Backlog of Unfilled Orders
January	197	5,084	35.6	....	....	20,229
February	166	5,142	36.0	....	....	15,253
March	1,404	6,548	45.8	....	....	10,109
April	792	5,400	37.8	....	....	5,501
May	2,212	3,061	21.4	....	....	4,752
June	4,329	1,478	10.3	....	....	8,603
July	5,766	1,543	10.8	....	....	12,826
August	4,024	2,356	16.5	....	....	14,500
September	8,543	2,844	19.9	....	....	20,746
October	8,674	3,586	25.1	....	....	25,947
November	7,012	3,981	27.8	....	....	30,362
December	5,476	4,293	30.0	....	....	34,205
Total, 1940	48,595	45,316	26.4			
1941						
January	6,299	4,993	34.9	....	....	34,384
February	2,728	4,057	28.4	....	....	32,991
March	9,440	4,987	34.9	....	....	37,359
April	12,478	5,300	37.1	....	....	44,707
May	19,513	4,670	32.7	6,500	1,830	59,104
June	15,341	5,130	35.2	7,500	2,370	69,355
July	6,449	5,467	38.2	10,000	4,533	70,330
August	3,145	3,856	27.0	12,000	8,144	69,307
September	600	5,044	35.3	14,000	8,956	65,230
Total, nine mos. 1941	75,993	43,504	33.8			

(A) Based upon rated operating capacity for all builders of 14,300 cars.
(B) Based on carbuilders' plans for increased production effective May, 1941.

Planned production called for deliveries during the remainder of 1941 as follows: October, 15,000; November, 16,000; December, 17,000.

In furtherance of this program, the railroads placed orders for 19,513 cars in May of this year and 15,341 in June. In the three months ended June 30, 1941, orders had thereby been placed for a total of 47,332 cars —only 1,263 less than placed in the full year 1940, and, by far, more than ordered from the car builders in any other full year since 1929 with the single exception of the 55,333 ordered in 1936; 6,449 more cars were added in July.

Unfilled orders reached a peak of 70,330 cars on July 31, and it appeared useless to continue to place orders that only piled up the backlog on car builders' books. Furthermore, with deliveries lagging seriously behind schedules, there was the risk for the railroads of being forced to pay interest on equipment trust certificates long before receipt of the equipment. With the carriers unable to secure delivery of cars already on order, and with only distant delivery dates available for newly ordered equipment, purchases fell to 3,145 cars in August, the lowest monthly volume excepting

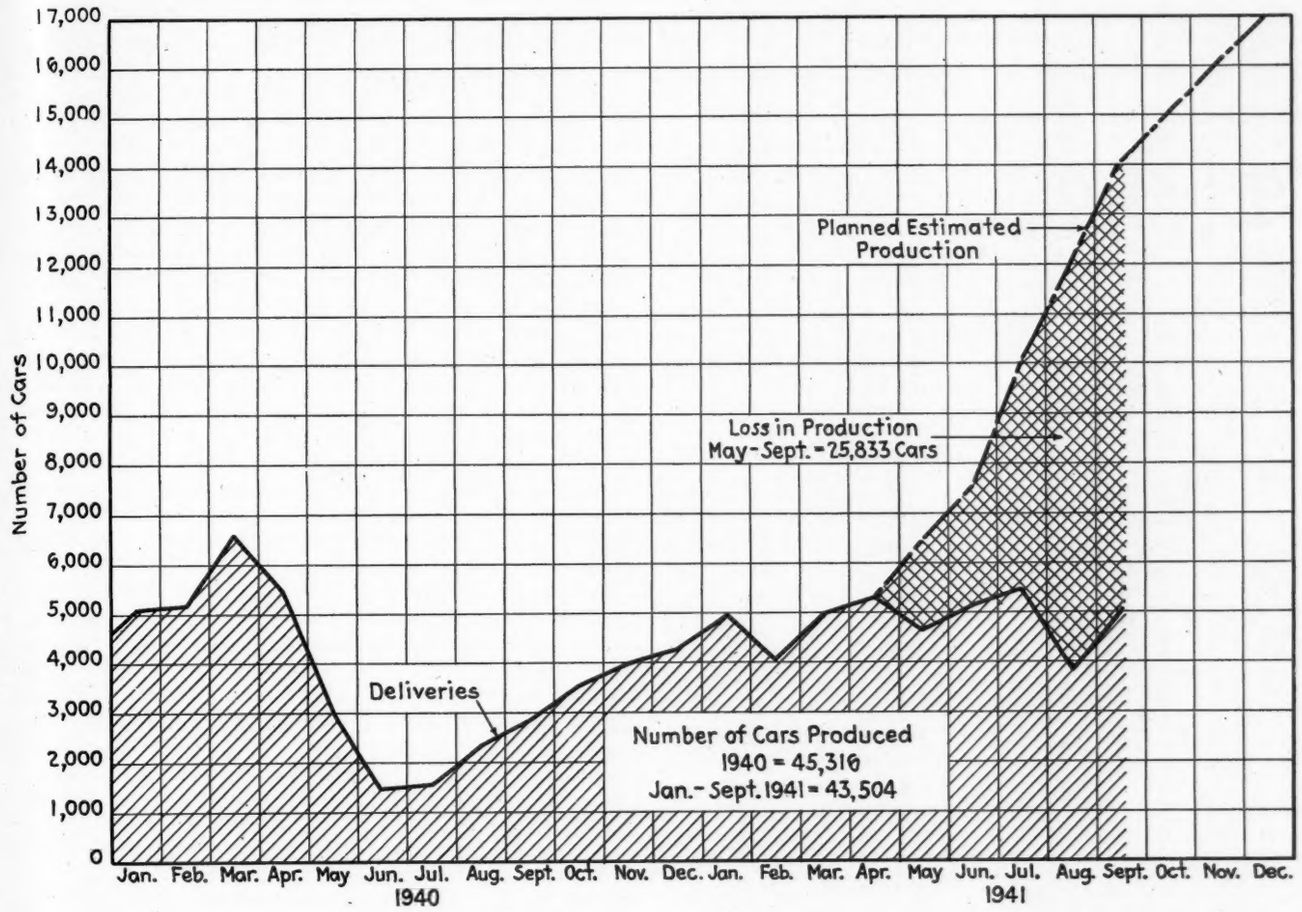
one since the buying wave began in June, 1940, and September orders totaled a mere 600 cars.

What, then, of deliveries?

The car building industry had planned to deliver 6,500 cars in May, and, thereafter, gradually to expand operations to a point where 17,000 cars would be delivered in December. By December, operations were to be at an annual delivery rate of 204,000 cars. These plans depended chiefly on the following factors: one, that new orders would be for cars of a standard design and placed in large enough volume to permit efficient production planning; two, that the car building industry would be able successfully to increase its trained man power; and three, that the industry would be placed high enough on the government's priority list to get the materials necessary for the purpose.

Actually, the car building industry received an A-3 priorities rating, supposedly to expedite steel purchases. However, higher ratings left little available and the flow of steel plate to the individual builders soon became a mere trickle. All requests for a higher rating were refused. Freight car production in May and June decreased under the 5,300 cars delivered in April, rose to 5,467 in July, and with less and less steel becoming available, slumped to 3,856 cars in August, a smaller number than produced in any month since October, 1940. September deliveries totaled 5,044 cars, about 9,000 less than planned. During the five months May-September inclusive, when 50,000 cars were to have been constructed, only 24,167 were delivered. As against 26,000 cars planned for August and September, only 8,900 were delivered, or about 32 per cent of expectations.

The plight of individual car building plants under the steel drought became, and remains, desperate indeed, with several plants forced to shut down. Thus one plant of a leading builder, with a monthly rated capacity output of 550 cars, produced none in May, 180 in June, 320 in July, shut down again in August, and delivered 339 cars in September; while a second plant, with monthly capacity of 500 cars, after delivering 302 in April, produced but 22 in May, 73 in June, 33 in July, 82 in August and 49 in September, a total of 259 during these five months, or about one-half of one month's rated output. This company's largest plant, with a monthly rated capacity of 1,225 cars, produced but 80 in August and 41 in September.



Deliveries in the largest plant of another leading builder, with a monthly rated capacity of 1,200 cars, were as follows: April 429 cars, May 55, June 19, July 581, August 13, September 169. The expansion in operations at this plant, upon receipt of steel and other material requirements, from 19 cars in June to 581 in July, indicates the improved level of operations quickly attainable were materials made available.

An examination of production by other car builders reveals, in varying degrees, the same situation, including other enforced shutdowns.

This is a loss in productive capacity not to be regained since for the car builders to build operations up to original plans would now require additional months during which capacity production should have been taking place.

And, unfortunately, no action is being taken to make additional steel available for freight car construction.

Labor's Demands Would Affect National Economy

Earnings will not support $900,000,000 pay boost, especially after emergency—Whitney threatens to recommend government ownership

THE $900,000,000 wage boost demanded by railway employees would not only be confiscatory but would create an inflationary effect that will be disturbing to the national economy, according to testimony presented by the carriers this week before the President's Emergency Board. The carriers' evidence, the presentation of which was started on October 3, is designed to familiarize the Board with the financial and operating problems of the railroads and the effect upon them of a $900,000,000 payroll increase, and to refute the testimony made by the brotherhoods in defense of their demands.

Witnesses for the railroads are showing that the present stimulus to business, which the brotherhoods have cited as a reason for increasing pay, is temporary and that after the national emergency has passed, the problems of the railroads will be intensified by increased competition by highway, waterway, air and pipeline transportation agencies which, under the emergency, are being fostered by the government. They are also showing that the financial and economic well-being of the railway industry is of vital interest to every economic group in the United States, including consumers, shippers of freight, manufacturers and their employees and other producers and investors. In addition they are showing that present earnings now and in the next two years must be plowed back into the property to meet the demands of the Defense Program because transportation is vital to national defense.

Parmelee Estimates 1941 Net as $525,000,000

J. H. Parmelee, director of the Bureau of Railway Economics of the Association of American Railroads, estimated that the net income of the railways in 1941 will be only $525,000,000, or only 3.91 per cent on property investment. This estimate was much less than the "accrued" net income estimate of $736,000,000 previously made by H. A. Bacus, research director of the Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station employees, who based his calculations on an assumption that $154,000,000 interest owed by railroads in receivership will not be paid. Mr. Parmelee estimated total operating revenues as $5,300,000,000, and total operating expenses as $3,525,000,000, as compared with Mr. Bacus' estimate of $5,331,000,000 and $3,493,651,000 respectively.

Capital Expenditures Can't Be Disregarded

Mr. Parmelee showed that, contrary to the position taken by the brotherhoods, capital expenditures are essential to efficient railroad operation. He testified that freight expense per 1,000 revenue ton-miles had been cut from $10.78 in 1921 and $8.53 in 1924, to $6.15 in 1940 and that, if improvements had not been made, the cost of handling freight in 1940 would have been $1,728,000,000 greater than in 1924. Had they been forced in 1940, he said, to meet such an additional expense, their net railway operating income would have been more than wiped out, capital would have received nothing and the railroads would have failed to meet their wages, other operating expenses and taxes by nearly a billion dollars.

The defense program, he said, demands even greater capital expenditures. From September 1, 1939, to September 1, 1941, these expenditures amounted to $859,639,000 while from September 1, 1941, to September 30, 1943, they will amount to $1,740,700,000. Included in the latter are 1,950 locomotives at a cost of $292,500,000; 276,000 freight cars at a cost of $883,200,000; other equipment to cost $165,000,000, and $400,000,000 for roadway and structures.

The improvement of the railroads physically and financially, which has already placed them in a better condition to serve the nation, he testified, should continue in order to furnish a buffer against the much smaller earnings that lie ahead. The new equipment purchased and a reserve of earnings, he said, will enable the railroads to retire obsolete equipment after the war.

Joseph H. Willits of the Board, in an effort to determine "whether there is any money which would be available for a possible wage increase," asked if the financing of emergency equipment is not on a par with the use of defense bonds for the building of defense plants. Mr. Parmelee was of the opinion that leasing equipment from the government would be more expensive than if the railroads purchased it as they have in the past.

Employees Entitled to Decent Standard of Living, Says Chairman Morse

Chairman Morse said, "I might say frankly that I was much impressed with your testimony in which you pictured the future of the railroad industry"; said the industry was vital to public interest and referred to competition after the emergency. "I think we can almost take judicial notice of that in our thinking. That the need for this industry will continue is also evident and raises the question of its relationship to a national standard of living in which the wage factor is involved. Employees in this industry as in other industries are entitled to a decent standard of living. Mr. Willits' remarks raise the question of a subsidy approach, because if this equipment is now needed in national defense and if the railroads are going to be in the position you paint after the emergency, is it not rather important that we consider very carefully the question as to whether there is not a public burden here and to see to it that the equipment is part of the emergency cost?" Mr. Fort replied, "There is this to be borne in mind. The influence of the recommendation of this Board upon the parties involved might be one thing but the influence of the recommendation

of this Board as a governmental policy upon Congress might be entirely different."

Railroads Not Overcapitalized

Contrary to the charges of over-capitalization made by A. F. Whitney, president of the Brotherhood of Railroad Trainmen, Mr. Parmelee testified that the aggregate road and equipment account of rail carriers was only $25,392,000,000 on December 31, 1940, compared with $13,030,000,000 on June 30, 1907, and that the difference between these totals was added to the account under the watchful eye of the Interstate Commerce Commission. In addition, he continued, we may assume that virtually all of the equipment in use in 1907 has been retired and replaced since that date. Calculations which take these two factors into account indicate that at least 58.5 per cent of the present investment has been made under the accounting rules of the commission. It seems reasonable to believe that the investment account of the carriers is a record of the actual and original cost of the transportation property covered by that account.

An exhibit of investment, valuation and capitalization of Class I, II and III railways, including lessor companies, showed that on January 1, 1938, the total property investment as shown by the books of the carriers was $26,401,665,00, the cost of reproduction new as found by the I. C. C. in Ex Parte 123, was $28,199,602,000, the value of railway property after the allowance for depreciation as found by the I. C. C. in Ex Parte 115 was $20,262,000,000 and that the net capital in the hands of the public was $18,319,003,000.

In contrast to the contention of labor that interest charges constitute a drag on wages, Mr Parmelee testified that annual interest charges of the railways are comparatively small in relation to the total annual payroll of the carriers. In 1940 Class I railways accrued a total of $414,871,000 in interest charges, of which $127,944,000 was not paid. The estimated total payroll of the same railway companies is about $2,200,000,000. The ratio of interest charges to payroll is 18.9 per cent or, stated in another way, the carriers are paying out $5.30 in wages for every dollar accrued to interest. Dividend payments have also been moderate, he said, and in recent years have declined to comparatively low levels. In only one year of the whole 20-year period from 1921 to 1940 has the average dividend rate equalled or exceeded 6 per cent. From 1921 to 1930 it averaged 4.87 per cent and from 1931 to 1940, 1.81 per cent.

Railway Employees Have Benefits Not Enjoyed by Other Workers

Dr. Parmelee showed that railroad employees lead workers in other industries in social benefits by a wide margin. He compared the benefits which railway workers and those employed in other industry gain from retirement annuities, unemployment compensation, dismissal allowances and free transportation.

Railroad annuities, he said, average $67.15 per month, as against $18.75 under Social Security. Other benefits cited in the railway act are: disability retirement regardless of length of service, retirement at 60 instead of 65, maximum annuity of $120 per month instead of $85; and minimum payments of $20 instead of $10 per month. He also compared maximum railway unemployment insurance payments of $20 per week with $15 for the automobile industry in Michigan and $18 per week in California where the employee is taxed one per cent of his salary for this purpose. Railroads pay a minimum of $8.75 while 38 states have $5 minimums.

Railway employees dismissed by reason of consolidations or co-ordinations may draw 60 per cent of their normal pay for periods ranging up to five years in addition to unemployment compensation, under an agreement between the railroads and the 21 standard railway unions, he said. Dr. Parmelee explained that railway employees and their families, from section workers to top ranking officers, are entitled to free rail transportation in addition to their regular pay. This he estimated to have been worth $75,000,000 to employees in 1937.

Higher Freight Rates Would Accompany Wage Boost

Because the trend of ton-miles of freight handled has been upward and that of revenue downward since 1929 and because the trend of traffic to publicly subsidized highway, water and air transport will be accelerated after the emergency, increased freight rates will be necessary to meet the additional costs arising from wage boosts, according to A. F. Cleveland, vice-president, traffic department of the Association of American Railroads. American railroads face a battle for survival when the present defense effort ends, he said.

His exhibit showed that the railroads handled more ton-miles of traffic in 1940 than in 1922 but received $450,000,000 less revenue, that railroad movement of livestock to 17 principal markets declined from 98.39 per cent of the total in 1916 to 37.93 per cent in 1940, while the truck movement increased from 1.61 to 62.7 per cent, that registered busses increased from 10,000 in 1919 to 141,000 in 1940, that five hundred times more passengers were carried in airplanes in 1940 than in 1926, that the inland waterways traffic index rose to 323 in 1940 and that of the railroads to only 107 compared with 100 in 1921, and that the petroleum production index was 131.2 while the railroads petroleum traffic index was 18 in 1940, compared with 100 in 1923.

When the emergency period is over, he said, much of the railroads' present business will return to coastwise and intercoastal and river ships. At the present rate of construction of ships, he continued, the nation will have the largest tonnage of water transportation facilities and the greatest ship building plants in the history of the country and the country's transportation plant will be so overdeveloped that there will not be enough traffic to support the various agencies.

Net Railway Operating Income Must Average Billion to Restore Credit

The net railway operating income of Class I railroads must average $1,000,000,000 annually to restore credit and any substantial increase in expenses would have a seriously adverse effect upon the railroad transportation system of the country, according to John W. Barriger, consultant for the Western Association of Railway Executives and formerly chief examiner of the railroad division of the Reconstruction Finance Corporation. The primary problem of the railroad industry, he said, is a restoration of net railway operating income sufficient to provide some capital directly through undistributed income that can be reinvested in the railroad plant and give the railroad industry the credit which will afford access to new capital needed for the improvement and strengthening of railroad service.

His opinion that a net railway operating income of $1,000,000,000 is required to restore railway credit was based on the following requirements and the assumption that other income will average $200,000,000 yearly:

	(000,000)
For fixed charges	$335
For leased line rentals	140

For contingent interest	100
	$575
To be conservative, reduced to	550
For additions and betterments incident to routine maintenance	150
For capital expenditures	225
For appropriations for sinking funds and debt retirement	50
Dividends (3% on capital stock)	225
	$1,200

In explanation of his opinion he said that part of the interest that has accrued and been unpaid in the past will finally be paid in cash and a still larger part of the arrearages, together with principal, will be represented by securities, some of which will be of the contingent interest type. For purposes of this measurement of the earning power required to service the capitalization of the industry, he continued, contingent interest should be considered along with fixed charges. In 1940 the contingent interest accrued amounted to $25,000,000 and it will accrue and in greater amounts hereafter and be paid to the extent earned in accordance with the terms of the respective indentures. Treating fixed charges and contingent interest together, he said, the actual requirements for fixed and contingent interest and rentals for leased roads will be in the neighborhood of $550,000,000.

In a representative year, Mr. Barriger continued, capital expenditures incident to ordinary maintenance will approximate three per cent of the total operating revenues. Upon the assumption that total operating revenues will reach $5,000,000,000, which appears to be approximately correct for the current year, the amount which must be appropriated for the capital expenditures incident to ordinary maintenance will be $150,000,000.

He estimated the amount which should be appropriated for additions and betterments not incident to routine maintenance at from $150,000,000 to $300,000,000. He was disposed to take the mean between these two figures or $225,000,000, although he doubted that it is large enough because during the eight years from 1923 to 1930 Class I railroads spent $842,714,000 a year.

Dividends, he said, must be earned and paid in order to establish credit. Stockholders are entitled to some dividends and those paid during the last years were inadequate. He did not take into account special expenditures which must be made in order to repair the physical and financial ravages of the depression years and nothing was set aside in his estimate to provide a cushion for the next economic recession. This indicated distribution, he said, does not go beyond what may fairly be regarded as normal or average requirements.

Mr. Barriger said that there is definite need for capital in substantial amounts because, in the face of competition, plant and equipment must be modernized, service must be improved and made more efficient and the cost of operation and maintenance must be kept under effective control. He also described the unsatisfactory state of railroad credit and the difficulties experienced by railroads in marketing their securities. As evidence of the unsatisfactory state of railroad credit, he pointed out that only bonds of such financially strong carriers as the Pennsylvania in the Eastern district and the four major coal carrying railroads of the Southern district are selling at satisfactory levels. In the Western district, there are only three railroad systems whose bonds are now accepted as legal investments for New York savings banks. The bonds of practically all other railroads, he said, are selling at too heavy a discount to permit the sale of new issues on a reasonable interest basis. When one considers stocks, the conditions are still more disturbing, he testified.

87 Per Cent of Increase Would Accrue to Those Averaging $1,844 or More

Eighty-seven per cent of any wage increase would accrue to men who averaged more than $1,844 in income, according to the testimony of J. Elmer Monroe, assistant director of the Bureau of Railway Economics. Mr. Monroe based his statement on Railroad Retirement Board reports which showed that 862,153 employees were paid $1,589,000,000 or $1,844 each in 1939. This, he said, represented 87.2 per cent of all the money paid by the industry to all persons. His testimony and exhibits contradicted wage data introduced by the brotherhoods and justified the use of the middle-of-the-month count of employees in establishing employee yearly, weekly and hourly earnings.

A total of 1,026,956 employees and officers on the middle-of-the-month count, he said, received $1,964,330,608 in 1940 or an average of $1,913. The 951,918 employees involved in the present controversy averaged $1,821 per year, $34.82 per week or $0.76 per hour. Employees in train and engine service, he testified, top the pay brackets with an annual average of $3,304 for engineers and motormen, $3,010 for conductors, $2,182 for brakemen and $2,316 for firemen. In 1916, he said, the annual average for these employees was $1,850, $1,613, $1,086 and $1,119 respectively. The average compensation for all employees increased from $862 in 1916, to $1,821 in 1940, or 111.3 per cent, he said. The average compensation of operating employees increased from $25.44 per week or 42.4 cents per hour in 1916, to $48.96 per week or 109.8 cents per hour in 1940, while that of non-operating employees increased from $14.26 per week or 23.7 cents per hour in 1916 to $30.34 per week or 65.6 cents per hour in 1940.

The index of the cost of living, he showed, reached a peak of 143.2 in 1920, dropped to 92.4 in 1933, and then rose to 102.7 in 1937 and to 106 in August, 1941. By using 1916 as a base, he showed that hourly money earnings in 1941 stood at an index of 279.9 while the index for weekly money earnings in 1941 stood at 219.2. In contrast, the cost-of-living index for the first five months of 1941 stood at 130.4 compared with 100 in 1916. As a result the real weekly earnings of the employees in 1941 were up 68.1 per cent compared with 1916. He also testified that the purchasing power of the average weekly wage in 1941 was greater by 36.9 per cent than it was in 1929. In other words, the cost-of-living index may rise nearly 37 per cent and still the employees will be as well off as they were in 1929.

Mr. Monroe also estimated the cost of a 30 per cent increase in the pay of train and engine service employees and an increase of 30 cents an hour in that of non-operating employees and its effect upon the net income of individual railroads. The total cost, including additional payroll taxes at 5.8 per cent for 51 railroads in the Eastern district, based upon the 1940 payroll would be $305,595,518. Of the 51 railroads, 37 would have deficits in their net incomes. The net deficit for the district would be $216,000,000, compared with a net income of $89,424,289 in 1940. In the Southern district it would cost 30 railroads $141,502,211 and 25 would have deficits. The net deficit in the Southern district would be $44,000,000 compared with a net income of $89,508,561 in 1940. In the Western district the cost would be $291,242,884 for 50 railroads and 44 of these would have net deficits. The net deficit for the Western district would be $263,981,396, compared with a net income of $9,918,351 in 1940.

His exhibit also showed that if a one per cent increase in pay were given to train and engine employees and a one cent per hour increase were given to non-operating employees, the estimated cost on the basis of the estimated employment for the calendar year 1941 would be $6,703,000 and $19,614,000 respectively or a total of $27,843,000 after adding increased payroll taxes of $1,526,000.

Whitney Threatens to Recommend Government Ownership

"We are just about ready to recommend that the government take over the railroads and put them on a cleaner and more decent basis." "Working rules will not be changed." "We have a strike ballot with which to get what we want." "Millions for propaganda and not a cent for wages." These are some of the statements uttered by A. F. Whitney, president of the Brotherhood of Railroad Trainmen, during his denunciation of "banker control." His testimony concluded the presentation of evidence by the five transportation brotherhoods. He included in the term waste, "money spent for propaganda," "money lost in stock market gambling," "dividends paid on watered stock," "money used to purchase stock in other railroads," "purchase of terminal facilities at excessive prices," and "payment of dividends at the expense of improvements." Mr. Whitney's remarks led Huston Thompson of the Board to inquire whether the elimination of these "wastes" would enable the carriers to pay the wage increase and Chairman Wayne L. Morse to ask that if after "wastes" are eliminated the carriers still cannot pay the wage increase whether the government ought to do something about it.

Mr. Whitney condemned the "double policy" of the railroads in dealing with employees and officers. A compilation of salaries of selected officers, he said, showed that during the period from 1937 to 1940 the salaries of these officers were increased 18.97 per cent while at the same time the railroads attempted to reduce the wages of their workers.

Members of the Board questioned Mr. Whitney's philosophy of hire which was to the effect that basic wages should not vary with business conditions, should not be based on ability to pay and that if an industry cannot pay a living or cultural wage it should go out of business. Chairman Morse said, "Let us assume that a company can pay a basic wage which you consider adequate under normal conditions and that it is making a profit which might enable it to pay a wage considerably more than what you would agree would be a good normal basic wage. Should the employees be allowed to participate in the higher earnings on the basis of an increased basic wage or under an arrangement whereby after a lower basic wage they would be paid in proportion to the increased earnings?" Mr. Whitney replied that he would have to take into consideration all of the factors that go into wage increases and that any guarantee above a living wage should be flexible enough so that employees could step in and ask that it be increased if they felt that conditions warranted it and that wages should not be fixed for any definite period.

Following Mr. Whitney's testimony, J. Carter Fort, chief counsel for the Carriers Joint Conference Committee began the carriers' reply to the brotherhoods by addressing the Board as follows:

"In view of certain of the testimony of Mr. Whitney, and in view of certain of the questions from the bench, it might not be inappropriate at this time for me to say, perhaps in supplement to my opening statement; that our position is that the railroad industry is being conducted, and has been conducted, with an honesty, an integrity, and a fidelity to trust and duty that is not second to that to be found in any large organization, whether a labor organization, a government institution, or an organization in any other field.

"If there have been any instances subject to criticism —and in what field have there not been some?—we say to you that they have no more significance with respect to the distorted condition of the railroad industry than a ripple on a wave in the ocean.

"But we shall show to this Board the causes of the condition of the railroads today. We ask you to analyze with the greatest care these loose and reckless charges which have been made, in order that you may make up your own minds as to their significance in connection with this case."

Santa Fe Strengthens Lines To Fight Flood Waters

(*Continued from page 571*)

a new bridge, immediately south of the old bridge site. This new bridge consists of four 100-ft. deck-girder spans, and, as mentioned previously, has an underclearance of approximately 30 ft. Furthermore, crossing the wash at almost right angles, it provides a much more favorable waterway opening than the old bridge, which crossed the wash at a sharp skew. Beyond this new bridge opening, the relocated line lies variously to the north and south of the old line, at no point more than 150 ft. from it, extending on a slightly descending grade for approximately 6,800 ft. to the end of the line change, almost directly at M. P. 546.

The relocated line, approximately 3.8 miles long, not only assures an adequate future waterway for Sacramento wash at peak flood stages, but also improved the alinement of the railroad materially, reducing the total degrees of central angle of curvature, and substituting a maximum curvature of 1 deg. for a former maximum curvature of 6 deg. However, restricted in its location directly through Mojave Gap west of the bridge crossing of Sacramento wash, the embankment of the new line was equally as vulnerable to side wash and erosion as the embankment of the original line, and, therefore, required the utmost in bank protection. To reduce the velocity of flood period flow through the narrows, which had been recorded as high as 16 ft. per sec., the line change work called for the widening of the channel on the far side, directly through the narrows, utilizing the excavated material in the new railroad embankment and blanket protection work. However, in spite of the favorable effect that this enlargement of the waterway will have in reducing the rate of flow, and, incidentally, the direction of flow, and thus tend to reduce the eroding effect on the railroad fill, the railroad provided this section of embankment through the narrows with the most effective form of protection which it has used to date, in the form of a reinforced concrete blanket, one section of which alone extends continuously for a distance of approximately 3,000 ft.

Further downstream, where less severe conditions will prevail, it installed long sections of rip rap protection, obtaining the material for this purpose (a Malapai rock) from a large cut on the new alinement. The protection work on the new section of line also included the embankment approaches to the new bridge over Sacramento wash, where sections of reinforced concrete blanket were installed, both upstream and downstream, aggregating a

total length of 2,000 ft., and at one other point further to the east, adjacent to the downstream side of a 30-ft. ballasted-deck girder bridge, where an additional 700 ft. of concrete blanket was provided.

In every respect the Mojave Gap line change represents the highest type of construction, extending to the track structure itself, and incorporates the latest standards of the road. In the first place, the embankment was built in layers not exceeding 6 in. in depth, the material being bladed out with bulldozers and compacted thoroughly, using a 10-ton roller where necessary to this end. Where additional moisture was required to secure the degree of compaction desired, the filling material was wet down by hose streams as spread, water being secured for this purpose from a 4-in. construction pipe line, seven miles long, which was connected to a locomotive water supply tank at Yucca, Ariz.

Starting the line change work in January, 1940, with the aim of completing it well before mid-summer when the hazard of excessive run-offs in Sacramento wash begins, every effort was made to expedite construction, and to this end extensive use was made of a large complement of heavy, large-capacity grading and allied equipment. That the use of this equipment and the program followed were effective in speeding up the work, is seen in the fact that all of the work, including approximately 1,500,000 cu. yd. of grading, the placing of approximately 30,000 cu. yd. of concrete in bridge substructures and protection blankets, and all of the track work, were completed between January 15 and April 15, a period of only 90 days. [Part II of this article, describing in some detail the various forms of bank protection employed by the Santa Fe, will appear in the next issue.]

Communications . . .

Managements Need Analysis of Traffic Trends

To the Editor:

The memorandum on the (largely non-existent) economic research by the railroads in the *Railway Age* of September 13, page 420, raises a question second in importance only to that of handling efficiently existing traffic—if, indeed, it is secondary even to that.

The September issue of "Oliphant's Studies in Securities" (No. 177) gives some hint of the dislocation and relocation of traffic sources which are likely to occur as a result of this country's military preparations; as well as the impetus which the war will give to transportation agencies competitive with the railroads.

This bulletin refers to "revolutionary changes among industrial products and to their relative positions." How many executives and traffic departments have detailed knowledge regarding these changes and what the effect may be on the traffic of their present patrons? Are these industrial shifts going to bring additional traffic to the railroads, or will the new products be lined up more closely to rival agencies of transportation?

Traffic Boom Is "Softening" Our Commercial Skill

Railroad men in the commercial side of the business know that we are heading into a difficult period. Few realize that we are *now* going through a softening process (as the result of temporary traffic) which may unfit us for the adversities which lie ahead.

Competition by highway and airway was never so severe as it is at the present moment. We just do not realize this, because the *total* traffic is so great. We shall realize it, more than ever, when total production and traffic declines. Technical improvements as a result of the defense effort will be considerable—largely applicable in automotive and air transportation, but not to the railroads.

The commercial sense of the railroad, awakened briefly during the adversities of the '30's, is now being buried by the revived ascendency of the producers of the net ton-mile. When we no longer have to solicit every ton of traffic, the monopoly mind becomes dominant. But the aftermath of the present crisis will be no healthy place for the monopolistic, or regulated, mind.

Are not the railroads reacting exactly as they did in 1917-19? But the situation confronting the railroads is different from that of World War I. The economic and technological changes from this war promise to be far greater than those of the last war; and yet the relatively insignificant changes resulting from the last war gave the carriers the worst headache they ever had up to that time.

Every railroad should consider having in its employ competent economic scouts, to keep abreast of all the changes that are taking place, and keeping management currently informed of them. Only by having such information can management formulate production and pricing policies adequately to safeguard investment in the railroads and the maximum preservation of the carriers' employing power.

How Much Does Management Know of What Shippers Are Doing?

An industrial shipper found that rail-water rates permitted profitable production and distribution in a given market. Curtailment of water service left this shipper the alternative of all-rail shipment at a diminished profit or changed distribution methods. The latter course was chosen, and truck transportation in combination with a relocated sub-factory brings this shipper greater profit than he realized under the rail-water set-up. Other shippers are using substitute raw materials, drawn from nearer sources of supply. Others are withdrawing from distant markets in favor of local competition.

These things are going on in infinite variety and quantity all over the country. How much *systematic* and detailed knowledge do managements have of these changes in their own territory, so that they may *accurately* alter their own service, rates and other policies—either to counteract unfavorable trends, take advantage of favorable ones, or trim sail (where that is the only possible course)?

I am inclined to believe—and I should welcome competent economic advice on the point—that the end of the war will find competition much worse and the total volume of traffic greatly reduced; with a reduction in the standard of living which will necessitate reducing costs and selling prices if *any* business of profitable consequence is going to be done.

If this suspicion proves well-founded, as I hope it won't, will the railroads *then* be able to reduce rates sufficiently to get a larger share of the country's total traffic? Not and avoid another cycle of bankruptcies, they won't.

The only time that the readjustment in rates to give the railroads a command of an economically fair share of the nation's traffic is while traffic is still plentiful, and the temporary losses from readjustments will not be felt. Such rate readjustments, *if they are made in time,* would estop competition, relocation, dislocation and drying up of traffic sources. If railroads are efficient mass carriers (and their labor and pricing policies are a part of such efficiency, as well as their technical skill) then they can stand the necessary readjustment and, before long, increase *net* earnings thereby. Lower prices enforce efficiency.

There are not many intelligent railroad men who, privately, will contend that rate increases afford any permanent solution to railroad difficulties.

Logical Arguments Need Checking with Facts

Managements cannot risk action on such important questions merely on the basis of persuasive reasoning. The accuracy of the reasoning needs to be constantly checked and proved by painstaking and systematic study of detailed facts. Such study may not be done by men in their leisure time, especially if they have no leisure. Competent specialists need to be assigned to such work, if it is to be done at all.

Most of the headaches of railroad managements during the past twenty years could have been greatly mitigated, if not avoided entirely, if they had assigned competent men to tell them in advance what was going to happen to their traffic (or, at any rate, informed them *promptly* when significant things *did* happen).

That is all water over the dam. But now, the railroads do not

have the resources they had 10 or 20 years ago to cushion them against mistaken judgment and lack of foresight. There is no longer the strength left in private ownership to take another drubbing like that of the '30's. And yet the prospects, in the absence of great wisdom and information, are for a situation dwarfing that of the '30's.

A Half-Way Job Won't Do

Rather than merely extending present halting efforts in economic research by the carriers as your correspondent suggests—I believe we need an entirely new activity. It should be located in the Executive Department, as a staff job. And all of the departments should be given a basic reason to co-operate in making the new job a success. Such a job could be used as a training ground for promoting men from various specialized departments and could be used as a source of supply for good men, when needed, in all departments.

We need some men on the railroads with broad economic training; or else we need to revive the lapsed interest of railroad managements in such questions. It was no coincidence that the rejuvenation of the London, Midland & Scottish Railway in Great Britain began when the distinguished economist, Lord Stamp, was put at the head of that property. A truly scientific spirit is just as proper to the commercial and personnel departments of a railroad as it is to the mechanical and engineering departments. A man with only a clerical background and opportunity cannot provide competent economic advice any more than a sledge-hammer mechanic could design a locomotive. This doesn't mean that a clerk cannot become an economist—but it can't be done without an opportunity for economic study.

RAILROAD TRAFFIC OFFICER.

On the Down Grade With No Brakes?

TO THE EDITOR:

By way of comment upon the interesting memorandum on economic research (*Railway Age*, September 13, page 420) I have had in mind a cartoon in a recent issue of a magazine. It seemed to me to cover the situation fully.

The picture showed two professional crystal gazers who were going out of business—the caption quoting one as explaining that nobody today wants to know what the future is.

It seems to me that most of the railroad fraternity simply accept the fact that after the emergency is over, we will be in a bad mess, with the trucks in their hey-day, more pipe lines, more business for the airplanes and the steamships. The majority of the railroad fraternity, as I sense it, feel there is not much that can be done about it anyway.

We seem to be on a run-away train on a mountain grade, with a sharp curve ahead, without much to do except to hold our breath, shut our eyes, and pray. Not many of us, I guess, know much about the latter.

STAFF OFFICER.

New Books

Manual of Ordinances and Requirements in the Interest of Air Polution, Smoke Prevention and Fuel Combustion. 176 pages, 6 in. by 9 in. Bound in paper. Official publication of the Smoke Prevention Association of America, Inc., 139 North Clark Street, Chicago, Ill. Price, Sixty Cents.

This manual includes information for those interested in eliminating smoke and air polution in our towns and cities. It includes a model smoke abatement ordinance. The greater part of the book is devoted to the proceedings of the thirty-fifth annual convention of the Smoke Prevention Association. Of special interest to railroaders are papers on Cyclone and Anderson Front Ends for Locomotives—Spark Arresters Without Netting by Leslie R. Pyle, Locomotive Firebox Company; Railroad Smoke Problems and Stoker Firing by Samuel A. Dickson, fuel supervisor, Alton Railroad; Grate Design and Its Influence on the Burning of Fuel and on the Abatement of Smoke by J. W. Hulson, president, Hulson Grate Company; and Abating Locomotive Smoke in Chicago by A. Deutch and S. Radner.

The Swedish Collective Bargaining System, by Paul H. Norgren. 339 pages. 9 in. by 6 in. Bound in cloth. Published by the Harvard University Press, Cambridge, Mass. Price $3.50.

At the outset it should be stated that this book does not deal with railroads, specifically, to any extent—but it does relate how collective bargaining and labor-management relations are conducted in a country where collective bargaining has long been established, and where the population is intelligent and socially mature.

Most timely during this critical period, when American labor unions are demanding heavy *permanent* wage increases, is the revelation that the Swedish unions have long accepted adjustments based on cost-of-living indices. This they do because bitter experiences in past depressions have taught them that artificially-high wage scales dried up the economy and hurt the workers more than anyone. Not only do the Swedish unions accept wage variations based on cost of living, but they also permit wide variations based on geographical differences (—this in a nation which is not much larger, either in area or population, than California!) Shop employees of the Swedish state-owned railways, for example, are paid on the basis of seven locality groups. The total differential from the lowest to the highest group, expressed as a per cent of the lowest time rate, is as high as 41 per cent. It is also somewhat surprising to note that Swedish unions like piece-work.

Adjustment Board-ridden railroad officers in this country will be especially interested in the nature of the Swedish Labor Court, which, like the National Railroad Adjustment Board, deals with disputes arising over the interpretation of existing agreements on working rules. This court, established in 1929, consists of seven members appointed for two-year terms. Three of these are neutral members, one of whom—the chairman—must be "well versed in the law and experienced in the practice of judgeship," while the other two are persons of experience in labor relations. The four remaining members are selected from nominees submitted by the Swedish Employers Advisory Board and the Federation of Trade Unions, respectively.

Respondents are required to submit statements of their respective versions of the issues in writing at least a week before the date of the trial. The chairman studies these statements, after which he confers with the parties by telephone and informs them they must be prepared to substantiate certain of their statements with further evidence. Also, interested people of both sides are required to present themselves as witnesses. The court convenes one day in each week and tries four cases between 10 a.m. and 4 p.m., one hour being allowed for each. At the end of the day the judges meet behind closed doors and vote on each case. The only task remaining is the writing of judgments, which are usually finished within two weeks after the trial.

Among other interesting revelations of the book is the fact that agreements between the Swedish privately-owned railroads and the unions bar strikes and lock-outs. What happens to the status of railroad employees when they work for the government is illustrated by the statement that such classes of employees of the Swedish State Railways as conductors, locomotive engineers, station agents, etc., are considered to be above the level of wage earners; are paid yearly salaries and are not granted the right of bargaining for the determination of their wages and working conditions. Instead their terms of employment are determined by national legislation.

A SMALL BROCHURE which gives recipes for dishes served on its dining cars has been prepared by the Illinois Central for distribution to patrons. The publication is in response to many inquiries from dining-car customers asking "how to make those intriguing dishes." The brochure describes succinctly ingredients, quantities and methods of cooking, but the railroad does not promise that the amateur cooks at home will be able to produce the same results as the chefs in its dining cars.

NEWS

No Car Shortage This Fall—Budd

No transport troubles if facilities are permitted to keep pace with industry

All indications, as seen by Ralph Budd, defense transportation commissioner, are that there will be no serious transportation shortage this fall, and he also predicts that it will not become necessary to go in for transportation priorities, if there is recognition of the fact that the country's "rather perfectly integrated" industrial set-up should be kept in balance by providing materials for expanding transportation facilities along with other industrial expansion which will increase the traffic load. Mr. Budd spoke thus in an informal talk at an October 2 luncheon meeting of the Washington (D. C.) Trade Association Executives.

Using the proposed 10,000,000-ton expansion in the steel industry's annual capacity as an example of what he had in mind, Mr. Budd called that Office of Production Management program the "largest item" that must be considered by the transportation industry in the near future. If steel capacity is to be thus increased, he pointed out, much more iron ore, coal and limestone will have to be hauled. Meanwhile, as indicated above, it has become apparent to Mr. Budd that the country's industrial plant at present is "rather perfectly integrated," with the transportation system as the belt-conveyor that up to now has been able to carry the load. If other parts of the plant are to be expanded, so also should the belt-conveyor, he went on, adding that the whole system will then remain in balance.

In making his aforementioned prediction that there will be no car shortage this fall, Mr. Budd conceded that here and there cars of a particular type might not be placed the minute they are needed; but there will be "no interference with defense or civilian activities." Recent loading figures make it appear to Mr. Budd that estimates predicting that this fall's peak would bring a million-car week have been "quite on the optimistic side." He thinks that the estimated peak of 940,000 cars, given to him last April by M. J. Gormley, executive assistant of the Association of American Railroads, and A. A. R. Vice-President C. H. Buford, will prove about right. Just as was the situation in 1940, Mr. Budd added, the railroads will handle an increased volume of business while encountering annual peaks relatively lower than in former years. Transportation congestion during the period of the first World War, he recalled, was due to the use of cars for storage; but he pointed out that the necessity for avoiding a repetition of such conditions is now generally realized, adding that much credit in that connection is due Mr. Gormley.

Speaking of other forms of transportation, Mr. Budd said that shortages have turned up in the urban transit field, especially in cities such as Washington and defense-industry towns where populations have expanded rapidly. Also, he has had reports of truck-transportation shortages here and there, where shippers have said they could use more truck service; but the defense program has not been delayed. In this connection Mr. Budd explained that the traffic of the for-hire truck lines has been increasing more than that of other freight carriers, the rise being from 35 to 40 per cent over last year.

Mediation Board to Hold R. E. A. Election at Detroit

The National Mediation Board announced on October 8 that it will proceed on October 10 to hold an election among certain employees of the Railway Express Agency to determine whether the Brotherhood of Railway Clerks, the International Brotherhood of Teamsters, or neither, should be named their bargaining representative. Pending the outcome of the election the Board has requested the Clerks' Brotherhood to call back to work members who have been on strike since October 4 and has further requested the teamsters to instruct members not to withdraw from service. A move which was threatened.

Representation of Employees

Results of recent elections in representation-of-employees disputes have been announced by the National Mediation Board. On the Chicago, Burlington & Quincy, the Hotel & Restaurant Employees' International Alliance, American Federation of Labor, won the right to represent dining car cooks, waiters, waiters-in-charge, coach waiters, porter - waiters, waiter - porters, lounge car and parlor car porters, cocktail lounge porter-waiters, buffet attendants, and coach-cafe cooks and waiters. On the Virginian, the Brotherhood of Maintenance of Way Employees won the right to represent the maintenance of way group; while red caps employed by the Ogden (Utah) Union Railway & Depot Company have chosen the United Transport Service Employees of America.

Maloney Believes Pelley, Not Ickes

Quiet figures make deeper impression on Senator than oil czar's bombast

The quiet, restrained and factual answer made by J. J. Pelley, president of the Association of American Railroads, on October 2, to the special Senate oil investigating committee in reply to Petroleum Coordinator Ickes' vitriolic attack on him on the previous day constituted the week's highlight of the current controversy as to how many idle tank cars there are in the United States. A brief mention of Mr. Pelley's factual refutation of Mr. Ickes' charges was made in last week's issue.

After the conclusion of the two-day hearing Senator Maloney, Democrat of Connecticut and chairman of the committee, made it abundantly clear that he accepted the refutation of Mr. Pelley in preference to the sweeping charges and aspersions on character made by the Secretary of the Interior who also holds the portfolio of oil czar. The Connecticut Senator also said that he saw no reason to revise the conclusion reached by the subcommittee in its initial report to the effect that there is no shortage of oil on the Eastern seaboard which cannot be overcome by utilization of existing transportation facilities.

"If there has been any change in the situation since our report was issued," declared Senator Maloney, "it has been one for the better. I feel now, as I have heretofore, that the shortage—always barring unforeseen events, can be overcome in the near future." He also felt that there was no necessity for further hearings by his subcommitee at this time.

At the same time, another member of the committee, Senator O'Daniel, Democrat of Texas, charged that the alleged petroleum shortage was "a manufactured emergency." Commenting on Mr. Pelley's answer to Mr. Ickes, Senator O'Daniel declared, "I am fully convinced that the railroads can deliver 200,000 barrels of oil a day. This is a manufactured emergency to build a pipeline, and it won't stand examination."

Meanwhile, James A. Moffett, former federal housing administrator and now chairman of the board of the California-Texas Oil Company, branded Mr. Ickes' handling of the oil problem as "an outrage on American consumers." Moreover, he saw no need for curfews or rationing, and he went on to say that even if a shortage should come, it could be corrected by the

(*Continued on page 594*)

Where Are Those 1,300,000 Loads?

Betts reminds shippers of the figure the "experts" set for fall loading peak

Continued shipper co-operation will enable the railways to handle any peak traffic this fall, in the opinion expressed by shippers and railway officers at the 56th regular meeting of the Mid-West Shippers Advisory Board, held at the Palmer House, Chicago, on October 2. General Chairman Fred A. Schleifer, traffic manager, Franklin County Coal Corporation, outlined the views of the shippers in opening the meeting when he said that "Voluntary co-operation in free enterprise is the only true American way of solving our mutual problems. Adequate transportation during the coming months will be the joint responsibility of the carriers and their patrons—the shippers and receivers of freight. Let us avoid transportation priorities by making every available car perform its maximum service."

The forecast of carloadings for Mid-West territory indicated a 13.3 per cent increase in the fourth quarter of 1941, as compared with the same period in 1940. All of the commodity committees reported prospective increases with the exception of the committee on autos, trucks and parts, which predicted a 10 per cent decrease. It is estimated that 1,033,172 cars will be loaded in the territory during October, November and December of this year, as compared with actual loadings of 911,837 cars in the same three months last year.

No actual or potential car shortages were reported, and the only difficulty in prospect is in connection with the movement of soy beans. This crop began to move on October 4 and, because of a record crop (40 per cent over any previous year in Mid-West territory) and record high prices, a large movement is in prospect. With all available storage space filled with wheat and corn, storage is in sight for only a small portion of the soy bean crop. Nearly half the total crop is milled at Decatur, Ill., where the elevators and mills are already jammed with 4,550,000 bushels of wheat, mostly under government loans. Representatives of the Commodity Credit Corporation present at the meeting, stated that the situation might be relieved in time, because there is a steady movement of corn from storage. Also, they said that prospects are good for shipping large quantities of wheat from the elevators at Buffalo, N. Y., and, if this is done, much of the Decatur wheat will be moved to Buffalo. The railways assured the shippers that they were prepared to handle the soy bean crop, but warned that cars could not be used for storage.

It was reported that a committee on complete unloading has been doing excellent work, and a vigilance committee, appointed to see that shippers co-operate with the railways in avoiding delays to cars, has also been effective in correcting mishandling of cars. This vigilance committee has organized numerous sub-committees and the entire Mid-West territory is being policed by volunteers from among the shippers. Committee members cited recent publicity looking toward the formation of a central agency of the government to control transportation, and urged all shippers to avoid this by proper handling of cars while in their care.

A. F. McSweeney, superintendent freight transportation, Pennsylvania, chairman of the railroad contact committee, in presenting the reports of the various railways as to the car situation, stated that since the formation of the committee on complete unloading, there has been a decrease of 50 to 60 per cent in the number of cars that have had to be switched to the "clean-out" tracks after unloading. He said that the railways had found the activities of the car vigilance committee of great value.

L. M. Betts, manager, Closed Car section, Car Service division, A. A. R., referred to the real danger that some sort of "czar" will be appointed for the transportation industry, and warned both the shippers and the railways that, if the fall peak is not handled satisfactorily, this danger will become more menacing. He said that, as of September 15, the railway ownership of cars was 1,595,717, with less than 5 per cent in bad order.

"The October loadings," Mr. Betts said, "will be less than the 1,300,000-car peak week predicted by government 'experts', and the high week will probably be not more than 950,000 cars. The capacity of the railways is almost limitless if the turnaround time of cars can be reduced sufficiently. The record of 11.2 days in the peak week of 1939 has not yet been exceeded, but if that record is equalled, the railways could take care of 997,000 loads a week without shortages.

"The tremendous amount of advance buying of coal and other commodities will tend to flatten out the usual fall peak this year. With a continuation of the present shipper co-operation, car shortages need not be feared this year."

The customary luncheon meeting was not held. Instead, members were given an opportunity to attend the annual transportation luncheon meeting of the Illinois Chamber of Commerce, which was addressed by R. B. White, president, Baltimore & Ohio, as reported elsewhere in these pages.

Sorry, Dean Morse!

Commissioner Ormond Bean of the Oregon Public Utilities Commission at Salem calls our attention to the caption we placed beside the picture of the "emergency board" in our September 27 issue, page 490. We there erroneously ascribed Dean Morse to the University of Washington, instead of, correctly, to Oregon. Our apologies to the Dean and our thanks to the Commissioner; with felicitations to ourselves on this evidence that we have such a careful and considerate reader amongst the regulatory hierarchy.

Railroads Have Friends in N. E.

Not slow in criticism, shippers feel no one will question sincerity of praise

The 34th regular meeting of the New England Shippers Advisory Board at Poland Spring, Me., on September 25 and 26 was marked throughout by expressions of praise for the job that the railroads are doing and contempt for those interests which are seeking to convince the public that the carriers have broken down. The keynote of the meeting was sounded by General Chairman W. H. Day, manager, transportation department, Boston Chamber of Commerce, when he declared: "Now individually speaking as buyers of transportation, we have never felt backward in criticising our railroad friends when we felt they were falling down on the job, and by the same token when we know that they are doing a most commendable job, as the facts indicate that they are now, we owe it not only to ourselves but to them, to make known to the public our feelings, with the hope that by so doing the public will not only learn the truth, but that these so-called propaganda artists will be a little bit more backward in the future than they have been in the past about trying to poison the public mind with misinformation."

Chief feature of the meeting was a series of three 10-min. talks on the fuel situation in New England, which, in view of the broad interest in the subject, was broadcast by radio. Speaking on coal, fuel oil, and gasoline, respectively, the speakers—R. L. Bowditch, president, C. H. Sprague & Sons Company; J. C. Richdale, vice-president, Colonial Beacon Oil Company and D. H. Howie, vice-president, Fiduciary Trust Company and Director of Gasoline Conservation in Massachusetts—appeared to agree that while the transportation of these products is "tight" there is no fear of undue shortage if every co-operation is given the carriers and reasonable foresight in ordering is displayed.

Among the subjects discussed on the regular docket on September 26 was the problem of dirty cars. The Executive committee revealed that a check made in the Chicago area indicated 28,140 car-days lost in necessary cleaning of 30 per cent of cars handled at the cleaning tracks. If this relationship were carried out to cover the entire Chicago area it would mean a loss of approximately 90,000 car days per month. The committee suggested that each railroad attempt to handle with its customers the problem of cleaning cars, and failing to get co-operation, the road should bring pressure to bear through the Advisory Board.

The Executive committee was of the opinion that its general chairman should be supplied with figures on available tank cars. In this connection a canvass should be made by the Car Service Division's district manager to ascertain: (1) the

number of tank cars on line loaded and empty; (2) number of idle cars; (3) car miles per day per tank car compared with car miles per day of other types of equipment.

Indicative of increased traffic which will go to the railroads because of shortages in water transportation was the statement made by the traffic representative of the Cotton Textile Manufacturers' Association that its members will depend this year absolutely upon the railroads for the movement of cotton to the south from New England. Very shortly these shippers will begin to move "brand new business . . . which our railroad friends have never before enjoyed." Also the board has been informed that Maine potato shippers expect to move seed potatoes to the South and Southwest by railroad some 12,000 carloads in excess of what they have moved before, on account of inadequate water facilities. Reports from the railroads on advance locomotive fuel supply, as of September 15, were as follows: Bangor & Aroostook, Rutland and Central Vermont —90 days; Boston & Albany—80 days; New Haven—62 days (approximately 181,000 tons in ground storage); Boston & Maine and Maine Central—35 days (expect to increase Boston & Maine supply to 40 days and Maine Central supply to 50 days by October 1). The board held "perfect shipping" meetings open to the general shipping public throughout New England during the year; the record shows total attendance of 2,347 persons thus far in 1941, as compared with 1,043 and 563 in the corresponding months of 1940 and 1939, respectively.

Speaking further on the subject of criticism of the railroads, L. M. Betts, manager, Car Service Division, A. A. R., declared:

"I haven't heard any studies being made of the ability of the Chrysler people to turn out tanks, and we hear a lot of praise about the transformation of a cornfield into a tank factory in a matter of a few months. I haven't heard of any experts declaiming upon the deficiencies of the Ford organization in connection with building bombers, nor giving them any advice as to how it ought to be done. But somehow or other, the railroad business seems to lend itself to a tremendous amount of volunteer advice and advisers. You can hardly walk the streets of Washington nowadays without stumbling upon some expert who is making a study of the ability of the railroads to take care of the transportation load of the country.

"I suppose it is very fortunate for us that public attention is being paid to our problem—it recognizes its importance—and whether it flatters the railroad management that it should be considered we need so much advice or not, I don't know."

Another A. A. R. representative speaking at the meeting was Arthur H. Gass, manager, Military Transportation Section, whose office is in the Quartermaster General's headquarters, Washington, D. C. Contrasting relations between the railroads and the government now as compared with 1917, the speaker described the close cooperation between the railroads and the Army that now exists. In illustration he took a typical routine job. The Quartermaster General received a request for 500 motor trucks for China to be delivered via the Burma road, and made arrangements for necessary materials at the production plant in Tarrytown, N. Y., and for ship space at San Francisco, Cal. But because shortages of certain materials and labor stoppages prevented an orderly production schedule at the plant, the trucks could not be turned over to the railroads "in time to make a nice easy run to the Pacific coast." So the railroads were handed the problem of doing their job between the production of the last truck and the sailing date of the vessel. The record? They took a train of 72 cars from Tarrytown late on the evening of August 7 and put them alongside the ship in San Francisco on the afternoon of August 12, or five days in transit.

Budd Explains That British Government Hasn't Taken Over Railroads

Railroads of Great Britain have not been taken over by the government—their status remains the same as it was in 1939, according to cabled advices received last week by Ralph Budd, defense transportation commissioner. Mr. Budd so stated during the course of an informed talk he made October 2 before the Washington (D. C.) Trade Association Executives; and he added that he was anxious to have the information publicized because of recent newspaper reports to the effect that the British lines had been nationalized.

Upon reading such reports, Mr. Budd said, he immediately made inquiry of Captain C. E. R. Sherrington, secretary, Railway Research Service, London; and he received Captain Sherrington's cabled reply on the day he made the aforementioned talk. The cablegram read as follows: "Reference your letter September 9, British railway's status unchanged since September, 1939. Kindly deny contrary reports." The recent change in the financial relationship between the British government and the railroads, noted in the *Railway Age* of September 27, page 500, gave rise to the newspaper reports.

Arizona Limited to Be Placed In Service Again This Winter

The Chicago, Rock Island & Pacific and the Southern Pacific will again operate the "Arizona Limited," an extra-fare, high-speed, streamlined train between Chicago and Phoenix, Ariz., during the winter season this year. Operating on alternate days, the train will be routed through Kansas City, Mo., El Paso, Tex., and Tucson, Ariz. It will leave Chicago on its first run of the current season on December 15 and its first trip out of Phoenix will be on December 17. The Arizona Limited will maintain the same fast schedule upon which it operated last year, 39 hours and 40 minutes to Phoenix. It will depart from Chicago at 8:45 p. m., and Kansas City at 8:05 a. m., the next morning, arriving in Tucson at 8:44 a. m. and Phoenix at 11:25 a. m., the following day. The train will be operated throughout the winter season and as far into the spring as the volume of traffic warrants, according to the traffic departments of the two roads.

C. P. R. Transcontinental Trains Crash Head-On

One passenger was fatally injured and nine employees shaken up when the two premiere transcontinental trains of the Canadian Pacific—the "Dominions"—collided head-on at Peninsula, Ont., 64 mi. west of White River, on October 1, at 5:35 p. m. Train No. 3, bound west from Toronto, Ont., to Vancouver, B. C., which was ordered to meet train No. 4, the eastbound run, at Peninsula, over-ran the east switch and collided with the latter train, derailing three baggage and express cars. Traffic was resumed over the line at 9 p. m. the same day.

Club Meetings

The Traffic Club of Philadelphia, Pa., will hold an informal dinner meeting at the Benjamin Franklin hotel on Monday, October 13, at 6:30 p. m.

"Modern Railway Lighting" will be discussed at the next meeting of the Railroad Enthusiasts, New York division, Room 2728 Grand Central terminal, New York, on October 24, at 7:45 p. m., by W. S. H. Hamilton, equipment electrical engineer, New York Central system. The talk will trace the development of car illumination from 1905 to the present.

The Car Department Association of St. Louis will hold its next meeting at the Hotel DeSoto, St. Louis, Mo., on October 21. Dinner will be served at 6 p. m.

Accounting Orders

The Interstate Commerce Commission this week made public two more orders modifying the accounting classification, effective January 1, 1942. One of the orders sets up two new income accounts for delayed income credits and delayed income debits, and cancels the two similar accounts which have been in the profits and loss classification. The object sought by the commission is to have over a period of years a full accounting in the income account for all revenue and expense items.

The other order modifies accounts 706—Investments in Affiliated Companies and 707—Other Investments in such a way as to provide separate accounting for secured and unsecured advances and to separate amounts due within one year from those of longer terms.

Grand Trunk Derailment Kills 1, Injures 13

Twenty-seven cars of a southbound fast freight were derailed at Lansing, Mich., demolishing part of the passenger station and a crossing watchman's tower and killing 1

and injuring 13 persons, late in the day on October 7. The freight train was 15 minutes ahead of a Toronto, Ont.-to-Chicago passenger train and was reported to have been traveling about 60 m. p. h., when the fifth car derailed at a street crossing. Several freight cars rolled over a half dozen parked automobiles and into the west wall of the station, and bricks and mortar fell on people in the main part of the waiting room. James R. Smith, 13 years old, of Lansing, who was selling magazines, was struck and killed as he stood on the platform outside the station.

To Cut Time of "Florida Special" 2¼ Hours

The Atlantic Coast Line and Florida East Coast plan to place the "Florida Special" on a running time of 24 hr. flat between New York and Miami, Fla., when the train begins its 54th consecutive winter season of operation on December 12 from New York and December 14 from Miami.

The proposed new schedule cuts 2 hr. 15 min. from last year's running time, and gives the train first place in average speed between the North and Florida on the A. C. L. route, which has heretofore been held by the 25-hr. schedule of the "Champion" (all-coach in the winter season). Present plans call for a 1 p. m. departure from New York and arrival at 1 p. m. the next day in Miami. Northbound the train will leave at 12:45 p. m. and arrive in New York same time next day.

$25,000,000 for Rail Equipment and Facilities in Lend-Lease Bill

The new lend-lease bill reported this week from the House committee on appropriations includes an item of $25,000,000 for railway equipment and facilities. The publication of testimony on the bill showed that Clifton E. Mack, director of the Treasury's Procurement Division had stated that the item was for the purchase of track materials, locomotives, freight cars, shop machinery and equipment, and light railway material and rolling stock.

Asked what was to be done with the foregoing, Mr. Mack stated that it was for the Middle East "theatres of war"—for the extension and maintenance of railroad facilities "in order to make them capable of handling the increased traffic involved in maintaining a modern army in the field." In response to other questions, Mr. Mack said some of the equipment was now being bought, but he didn't think any of it had actually left the country.

Motor Rate Schedules Proposing Reciprocity Rule Suspended

Proposed rules in a contract-carrier minimum-rate schedule whereby the carrier would agree to purchase certain supplies from the shipper and absorb certain telephone and telegraphic expenses incurred by the shipper have been suspended by the Interstate Commerce Commission from October 6 until May 6, 1942. The rules are being proposed by H. F. Johnson of Laurel, Mont., for application in connection with minimum rates for the transportation of petroleum products; and the case has been docketed as I. & S. No. M-1831.

The proposed reciprocity rule reads as follows: "The carrier will purchase his gasoline, tires and other accessories from the contracting shippers provided that the price at which such merchandise can be purchased from said shippers is not greater than that at which the carrier can purchase the said merchandise from other sources." That relating to absorption of telephone and telegraph charges is: "The rates named herein include telephone and telegraphic communication costs by shipper, shipper's agent or principal, to the carrier in connection with shipments tendered to carrier by the shipper when such communication will assist carrier in more rapid and economical dispatch of the carrier's motor vehicles."

September Employment 13.53 Per Cent Above 1940

Railroad employment increased another 0.31 per cent—from 1,207,569 to 1,211,258—during the one-month period from mid-August to mid-September, while the September total was 13.53 per cent above September, 1940, according to Interstate Commerce Commission's compilation based on preliminary reports. The index number, based on the 1935-1939 monthly average as 100 and corrected for seasonal variation, was 116.4 for September as compared with August's 115.4 and September, 1940's 102.6.

September employment in all groups was above that of September, 1940, while all save the maintenance of way and structures group (down 1.58 per cent) were slightly above the previous month. The largest increase over September, 1940, was the 16.48 per cent rise in the train and engine service group; next in turn came maintenance of way and structures, up 15.15 per cent, maintenance of equipment and stores, up 15.06 per cent, and yardmasters, switchtenders and hostlers, up 11.17 per cent.

U. S. Rubber Develops New Metal Substitute

Development of a new non-metallic material one-third lighter than aluminum and designed to replace strategic metals in many important applications was announced on October 3 by the United States Rubber Company. The new substance, which is made from fibrous and rubber-like ingredients, has already been tested and approved by the United States Army, according to the announcement. Of prime importance in the present emergency is the fact that except for small amounts of rubber the new formula is made of non-strategic materials, and will not be affected by priorities.

The new material, which is known simply as Formula C-102, has a number of important qualities. Under gunfire, for example, it resists ripping or shattering. It will not crystallize from vibration as do metallic substances and is free from corrosion and pin-hole formation. Discovery of the new substance was made while members of the Research department were working on bullet-puncture-sealing fuel tanks for airplanes developed by the company, in the search for a container for the tanks which would have all the advantages of aluminum, including lightness, yet have greater resistance to shattering and flowering when struck by bullets. The company believes that in addition to this and many other contemplated defense uses, the new material will find many applications in normal industry.

Money for Mediation Board

Supplemental appropriations of $55,000 and $14,385 for the National Mediation Board are carried in the new lend-lease bill which was reported this week from the House committee on appropriations.

The $55,000 item is to reimburse the board's arbitration-and-emergency-boards account, from which will come funds to pay the expenses of the five-man emergency board now holding hearings on the wage-increase demand. Explaining the item at the committee's hearings, Chairman Lewis of the Mediation Board stated that the emergency board was expected to cost about $40,000, while the arbitration-and-emergency-boards account now has an unexpended balance of about $34,000. The new appropriation is designed to take care of the emergency-board expenses while at the same time leaving a balance in the account for any additional emergency or arbitration boards required during the remainder of the current fiscal year.

As noted in the *Railway Age* of September 20, page 459, the $14,385 item will enable the board to employ two additional mediators and provide additional funds for travel expenses.

Retirement Board Activities

Retirement certifications made by the Railroad Retirement Board in August amounted to $10,409,441, bringing total payments since the beginning of the Board's operations to $450,946,944. During this time the board certified 147,717 employee annuities, 48,537 pensions, 3,021 survivor annuities, 5,794 death benefit annuities, and 44,927 lump-sum death benefits.

Employee annuities in force at the end of August totaled 120,083 with a monthly amount payable of $7,892,240. The average monthly payment was $65.72.

Unemployment insurance claims receipts totaled 29,996 in the four-week period August 2-29, averaging nearly 7,500 a week as compared with 7,200 for the last two weeks of July when claims for the new benefit year were first received. "Although the increase probably reflects a small increase in the number of layoffs, the number of people added to the payroll in August was so much larger that there was a net increase in employment," the board said.

Benefits certified in August amounted to about $520,000, with $507,815 being certified on claims for the current benefit year. The average certification which included waiting-period credit was $14.24, and the average for benefits only was $23.34.

Second Anniversary of the "400" Streamliners

On September 24, the "400" streamliners of the Chicago & North Western celebrated their second anniversary of operation as

complete streamlined trains operated by Diesel locomotives. From the inaugural day two years ago, the "400" streamliners, operating daily between Chicago and St. Paul-Minneapolis, via Milwaukee, have been setting new records in passengers carried, culminating with the biggest month in their history during August, 1941. Last month there was an increase of more than 12 per cent as compared with the same month a year ago. During this period, almost one-half million passengers have been carried on the two "400" streamliners since their initial run on September 24, 1939, an increase of 58 per cent over a comparable two year period when the "400" was steam-powered.

These Diesel-operated trains have piled up a record of just under 1,250,000 miles of travel, making one complete round trip every day, pulling the Streamliner "400" in one direction with a return trip as the motive power on the overnight North Western Limited, and have established a brilliant record of performance operating almost continuously since they were delivered, according to R. L. Williams, chief executive officer of the North Western.

Florida Raises R. R. Tax Assessments 3 1/3 Times

Assessed valuation of the properties of Florida's railroads and telegraph companies has been increased about 3⅓ times for purposes of taxation for 1941 by the state Railroad Assessment Board in accordance with a new "full cash value" law stipulating that all property in the state shall be assessed on the basis of full worth. Total assessed value for the purposes of taxation of all railroads and telegraph companies would thereby be established at $87,591,500 for 1941, as compared with $26,372,129 in 1940.

For Florida's main line carriers the new basis means a boost in assessment value of about $51,490,000. Assessments for 1941 as compared with 1940 are:

Atlantic Coast Line—$30,000,000 (1941), $8,702,426 (1940).

Seaboard Air Line—(reported but not confirmed) $22,000,000 (1941), $6,880,075 (1940).

Florida East Coast—$16,000,000 (1941), $4,829,365 (1940).

Louisville & Nashville—$5,500,000 (1941), $1,609,950 (1940).

This drastic increase in assessed valuation of the roads does not necessarily mean a proportionate increase in actual taxes, since the rate levied per dollar of valuation may be reduced. At the present time the railroads have no specific information as to future plans for such reduction, however.

Alco and G. E. Make Railroad Movie

A 30-min. sound motion picture in color entitled "Railroadin'" will be made available by the American Locomotive Company and the General Electric Company for showing by the railroads after October 21. The film, produced by a Hollywood company, was witnessed for the first time by a group of newspaper men and railroad public relations officers in New York on October 3. Its official premiere will be presented simultaneously in New York, Chicago, Los Angeles, Cal., and St. Louis, Mo., on October 21 to railroad officers from all parts of the country.

"Railroadin'" was made by the American Locomotive Company and General Electric in co-operation with the railroads, for use by the latter for educational purposes in schools, colleges and clubs. The film (which is in 16 mm. sound only) is available to railroads at no cost other than charges incidental to shipping and may be obtained at the headquarters of American Locomotive at 30 Church Street, New York, or the Visual Instruction Section, General Electric Company, Schenectady, N. Y. In addition the film will be available in the district offices and plants of Alco at Atlanta, Ga., Chicago, Richmond, Va., St. Louis, Mo., San Francisco, Cal. and Washington D. C. and district offices of G. E. at Atlanta Ga., Boston, Mass., Chicago, New York, Cleveland, Ohio, Dallas, Tex., Denver, Col., Los Angeles, Cal., Philadelphia Pa., Portland, Ore., and Salt Lake City, Utah. For a moderate service charge the film may also be obtained from the Department of Visual Instruction, University of California, Berkeley.

The film cast includes a number of well-known Hollywood actors and a big cast of extras—but the main actors are the American railroads themselves. The film shows America in pre-railroad days; the early struggles of the roads for recognition, and a present-day railroad operation. Director John Boland (who was assistant director of the motion picture "Wells Fargo") and his crew of technicians, covered more than 50,000 mi. while making the picture and visited nearly all of the 48 states. Ahead of this crew went Clarence C. Bailey, transportation representative of the General Electric Company, to arrange "shooting" schedules which would not conflict with the operations of the railroads.

Picture of a "Drummer" Before Standard Time

This "still" from the new color, sound film "Railroadin'," produced by the American Locomotive and General Electric Companies for the use of the railroads, shows the reaction of a traveler of 1880, who has left plenty of time to take a train to his appointment in Newburgh but has just learned that the town is across the county line and has time 45 min. faster than that at his originating station. Introduction by the roads of standard time belts has changed all that.

S. P. Affiliate Authorized to Buy Trucking Company

Pacific Motor Trucking Company, subsidiary of the Southern Pacific, has been conditionally authorized by the Interstate Commerce Commission, Division 4, to acquire for $24,000 the operating rights and property of Morales Freight Lines, Clifton, Ariz. The same decision dismissed Pacific's application for authority to acquire for $1,750 the operating rights and property of Bisbee Transfer & Storage Co., Bisbee, Ariz.

The conditions attached to the favorable action on the Morales transaction stipulate that the rights purchased shall be modified by excluding all rights to render service from or to, or interchange traffic at, any point not a station on S. P. rail lines if such point is more than 10 miles by highway from such station. Also, Pacific must amortize over a 10-year period any increase in its "Other Intangible Property" account resulting from the transaction. The Morales rights to be acquired cover operations between El Paso, Tex., and Glenbar, Ariz., and Arizona certificates covering intrastate operations in that state.

With respect to the dismissed application for authority to acquire Bisbee Transfer & Storage Co., the commission noted that Bisbee operates under the exemption from the Interstate Commerce Act's certificate requirements; and thus, as the precedent-setting decision in the Baggett case (36 M. C. C. 659) determined, it "has no properties within the meaning of section 5 which the commisison may authorize to be purchased."

Associated Traffic Clubs Convention October 20-22

The Associated Traffic Clubs of America will hold its annual convention on October 20-22 at the Schroeder Hotel, Milwaukee, Wis. Walter Benson, instructor in industrial journalism at Marquette University and an authority on industrial and organization publications, will speak at the noon luncheon for editors of club publications

on Monday, October 20. At the first business session on Tuesday, October 21, Mayor Carl Zeidler of Milwaukee, and George C. Heiden, president of the Milwaukee Traffic Club, will welcome the delegates, following which Ralph Budd, president of the Chicago, Burlington & Quincy and transportation commissioner, advisory commission to the Council for National Defense, will address the convention. At the dinner and dance Tuesday evening, Charles Milton Newcomb will speak on "What Is It to Be an American?"

At the Wednesday morning session a series of papers on important and timely transportation subjects will be presented as follows: "Trainload Freight Rates," by Elmer A. Smith, general attorney, Illinois Central, Chicago; "New Problems in Handling Merchandise Traffic," by W. J. Williamson, general traffic manager, Sears Roebuck and Company, Chicago; "The Interterritorial Rate Problem," by H. A. Hollopeter, traffic director, Indiana State Chamber of Commerce, Indianapolis, and "The Administration of Part III of the Interstate Commerce Act," by George E. Talmage, Jr., director, bureau of water carriers, Interstate Commerce Commission.

New Monthly Review by I. C. C.'s Bureau of Statistics

The Interstate Commerce Commission on October 8 made public the first issue of "Monthly Comment on Transportation Statistics" which was prepared by the Bureau of Statistics and is expected to be issued each month. The statement carries the usual disclaimer to the effect that it is "issued as information," and "has not been considered or adopted by the Interstate Commerce Commission."

The first issue covers 11 mimeographed sheets, and reviews such previously-published data as railway traffic, revenues, expenses and net, and truck loadings through August. Also, there are data on air carriers, pipe lines and water carriers, and references to the latest statistics of railway accidents and railway employment. The discussion of freight car supply states that because carloadings for September this year "have not increased according to normal seasonal expectations," it does not appear likely now "that a weekly peak of more than 960,000 cars will materialize this season."

Previously the Bureau had presented data on the car inventory and discussed utilization as measured by the ratio of active cars (excluding unserviceable and surplus cars) to carloadings. In that connection the statement said: "The Class I railways had an average of approximately 1,772,000 active cars on line during August of this year. It seems certain that the number of active cars cannot greatly exceed this figure at the time of the approaching fall traffic peak. The handling of further increases in traffic, therefore, must depend chiefly upon continued improvement in the utilization of the available cars. Assuming 1,800,000 active freight cars on line utilized at a ratio to weekly loadings equal to that for the month of October, 1929, when it was 1.92 cars per car loaded, the railroads could load a monthly average of 937,500 cars per week. The ratio of 1.88 active cars per car loaded for the single week ended October 19, 1939, which was the peak for that year, would allow peak loadings for one or perhaps two consecutive weeks of approximately 958,000 cars with 1,800,000 active cars on line. It may be noted that the performance in October, 1939, was achieved with very little opportunity to prepare for the sharp increase in traffic which occurred then."

Next, the Bureau made its aforementioned prediction that this fall's peak would not be more than 960,000 cars. "However," it went on, "the handling of as many as 1,000,000 carloads per week, which represents approximately the estimated peak according to some recent forecasts, would require a ratio of 1.8 active cars on line per car loaded, with 1,800,000 active cars. If the need should develop, the attainment of such a ratio for a short period does not seem beyond reach, provided there is reasonable co-operation in the efficient use of cars. A more severe test of the car supply and of railroad performance may be in prospect for next year, owing to the probable continuance of war conditions."

August Accident Statistics

The Interstate Commerce Commission on October 7 made public its Bureau of Statistics' preliminary summary of steam railway accidents for August and this year's first eight months. The compilation, which is subject to revision, follows:

Item	Month of August		8 mos. ended with August	
	1941	1940	1941	1940
Number of train accidents	849	551	5,795	4,520
Number of casualties in train, train-service and nontrain accidents:				
Trespassers:				
Killed	270	233	1,476	1,379
Injured	193	259	1,253	1,421
Passengers on trains:				
(a) In train accidents*				
Killed	..	..	4	66
Injured	64	53	714	640
(b) In train-service accidents				
Killed	2	2	9	5
Injured	174	194	1,148	1,146
Travelers not on trains:				
Killed	1	1	7	4
Injured	64	76	571	558
Employees on duty:				
Killed	74	41	447	336
Injured	2,508	1,478	15,617	11,592
All other nontrespassers:**				
Killed	158	118	1,283	1,226
Injured	507	420	4,084	3,730
Total—All classes of persons:				
Killed	505	395	3,226	3,016
Injured	3,510	2,480	23,387	19,087

* Train accidents (mostly collisions and derailments) are distinguished from train-service accidents by the fact that the former cause damage of more than $150 to railway property.

** Casualties to "Other nontrespassers" happen chiefly at highway grade crossings. Total highway grade-crossing casualties *for all classes of persons, including both trespassers and non-trespassers*, were as follows:

Persons:				
Killed	137	105	1,152	1,105
Injured	349	284	2,849	2,659

No Congestion of Traffic at Any Ports

Speaking on the national transportation situation at the meeting of the Pacific Northwest Advisory Board, held in Spokane on Friday, September 26, G. C. Randall, manager of Port Traffic, American Association of Railroads, of New York, stated that, "The capacity of no port has as yet been approached." Concerning the railroad situation in general, he said, "Although the estimates of the peak week of 1941 vary from 950,000 to 1,100,000, it now seems to be clear that the peak will not exceed 975,000 cars. With this peak, there is no question but that the railroads will satisfactorily meet every demand for transportation."

Regarding the port situation, about which there has been some concern expressed, Randall reported that the situation at all ports continues very satisfactory. North Atlantic ports continue to handle approximately 65 per cent of the total volume of export freight, which is about the same percentage as handled during World War I. South Atlantic and Gulf ports did somewhat less business as a whole than in the corresponding month of 1940, while the movement through Pacific Coast ports increased approximately 20 per cent in August, 1941, over August, 1940.

Since November, 1939, the tempo at New York has gradually increased to over 1,000 cars per day, yet at no time has there been any congestion, nor has there been a time when additional business could not have been handled.

"Committees of railroad and steamship men, and individual shippers, as well as the committees of the Advisory Boards have done splendid work in assisting in keeping the facilities at all the ports liquid. As a matter of fact, the capacity of no port has as yet been even approached. With the continued co-operation of shippers and steamship people, there is every reason to believe that transportation to and through the ports will continue to be satisfactory to all concerned."

Henderson Denies Rumors of Higher Ceiling Prices on Scrap

"Rumors circulating in the iron and steel scrap trade that the Office of Price Administration is considering an increase in ceiling prices" were denied on October 7 by Leon Henderson, OPA administrator. Mr. Henderson also declared untrue reports that his office plans to change or eliminate various grades of scrap covered by the schedule so that higher ceiling prices would result for some types.

"These rumors," the OPA statement said, "appear to have been deliberately inspired by certain members of the trade. Their effect is to influence dealers to refrain from collecting and selling scrap in normal amounts in the belief that they will profit by waiting for higher prices. As a result, scrap accumulates in huge quantities in dealers' yards. Steel plants urgently in need are unable to buy sufficient scrap to maintain their operations at the high levels demanded by the defense program. With the stage thus set, stories begin to appear blaming the interruption in supply on the 'inadequate' prices allowed by the OPA scrap schedule, accompanied by widespread demands that the ceiling be raised to relieve the situation."

The maximum prices established in the iron and steel scrap schedule "are ample to bring out all scrap available," Mr. Henderson said. "No increases in the general price level are warranted and none will be

made. Neither will the schedule's grade definitions be changed. Those dealers who are hoarding scrap in anticipation of higher prices may find themselves in an uncomfortable situation if their actions continue to hinder the progress of the defense effort."

Freight Car Loading

Loading of revenue freight for the week ended October 4 totaled 917,516 cars, the Association of American Railroads announced on October 9. This was a decrease of 1,994 cars, or 0.2 per cent, below the preceding week, but an increase of 111,512 cars, or 13.8 per cent, above the corresponding week in 1940 and an increase of 87,414 cars, or 10.5 per cent, above the same week in 1939.

As reported in last week's issue, loadings of revenue freight for the week ended September 27 totaled 919,510 cars, and the summary for that week, compiled by the Car Service Division, A A. R., follows:

Revenue Freight Car Loading

For Week Ended Saturday, September 27 Districts	1941	1940	1939
Eastern	187,480	167,150	170,566
Allegheny	199,667	170,807	168,420
Pocahontas	59,921	56,419	57,522
Southern	128,779	115,372	114,952
Northwestern ..	145,713	136,622	133,440
Central Western	133,855	119,481	123,873
Southwestern ..	64,095	56,583	60,923
Total Western Districts	343,663	312,686	318,236
Total All Roads	919,510	822,434	829,696
Commodities			
Grain and grain products	40,480	39,392	45,370
Live stock	16,513	17,517	20,252
Coal	170,759	158,484	164,369
Coke	13,900	11,690	11,038
Forest products.	46,288	40,668	37,116
Ore	71,267	67,215	60,400
Merchandise l.c.l.	160,593	158,034	162,404
Miscellaneous ..	399,710	329,434	328,747
September 27 ..	919,510	822,434	829,696
September 20 ..	907,969	813,329	809,752
September 13 ..	913,952	804,265	800,431
September 6 ...	797,740	695,094	662,357
August 30	912,720	768,775	716,397
Cumulative Total, 39 Weeks ...	31,263,484	26,590,040	24,285,944

In Canada: Carloadings for the week ended September 27 totaled 68,720, as compared with 70,867 in the previous week and 61,267 last year, according to the compilation of the Dominion Bureau of Statistics.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
Sept. 27, 1941	68,720	31,406
Sept. 20, 1941	70,867	30,633
Sept. 13, 1941	70,421	30,757
Sept. 28, 1940	61,267	25,204
Cumulative Totals for Canada:		
Sept. 27, 1941	2,336,155	1,145,272
Sept. 28, 1940	2,045,270	950,099
Sept. 30, 1939	1,830,978	804,859

Collapse of Railroad Bridge Ties Up Great Lakes Ore Traffic

On October 7, the northern arm of a bascule-type lift bridge of the Canadian Pacific over the St. Mary's Falls canal at Sault Ste. Marie, Mich., collapsed under the locomotive and tender of a 35-car freight train en route from Canada. The locomotive and tender fell through the open end of the bridge into the canal, drowning the engineer and conductor, who were trapped in the cab of the locomotive. Two other trainmen were rescued from the water. The accident blocked the entrance to the two largest locks of the St. Mary's Falls canal connecting Lake Huron and Lake Superior. Two other locks on the American side and the Canadian Ship canal and locks remain open for traffic, but the channels of these locks do not permit the passage of fully loaded ore carriers, and, in addition, they are older and cannot be operated as efficiently as the locks that were blocked. An emergency order was issued to vessels now loading to limit their draft to 16 ft. 6 in. The normal draft of the loaded ore carriers is from 17 ft. to 20 ft.

Within 3½ hr. after the accident, it was reported that 25 vessels enroute from Lake Superior, had anchored awaiting passage, and another 50 which had taken on their loads before the collapse of the bridge, were expected. About 150 vessels were in Lake Superior at the time of the accident, all of which were expected to be seeking passageway through the waterway within a few days. Military authorities estimated that it would be four days before the locks could be cleared.

The bascule bridge which failed was 330 ft. long. It has been in continuous operation since 1888 and was built at a cost of $800,000. The cause of the failure was unknown, but authorities were inclined to discount the possibility of sabotage.

W. H. Winterrowd and C. B. Peck Elected A. S. M. E. Vice-Presidents

W. H. Winterrowd, vice-president of the Baldwin Locomotive Works, Eddystone, Pa., and C. B. Peck, managing editor of "Railway Mechanical Engineer" and mechanical department editor of *Railway Age*, New York, were among four elected vice-presidents of the American Society of Mechanical Engineers by a letter ballot of its 15,000 members, the results of which were announced recently. Elected president of the society was J. W. Parker, vice-president and chief engineer of the Detroit Edison Company. Other vice-presidents elected were C. F. Freeman, senior vice-president and engineer, Manufacturers Mutual Fire Insurance Company, Providence, R. I., and W. R. Woolrich, dean of the College of Engineering, University of Texas, Austin, Tex.

Mr. Winterrowd was born at Hope, Ind., on April 2, 1884, and was graduated from Purdue University with the degree of B. S. in M. E. in 1907, receiving his doctorate degree in 1936. He entered railroad service in 1905 as a blacksmith's helper on the Lake Erie & Western (now New York, Chicago & St. Louis) at Lima, Ohio, and in 1906 became car and air brake repairman for the Pennsylvania, Lines West of Pittsburgh, at Dennison, Ohio. A year later he became special apprentice for the Lake Shore & Michigan Southern (now New York Central). In 1908 Mr. Winterrowd went with the Lake Erie, Alliance & Wheeling (now New York Central) as enginehouse foreman, becoming night enginehouse foreman at Youngstown, Ohio, for the Lake Shore & Michigan Southern the following year. He then served with the latter road as roundhouse foreman at Cleveland, Ohio, and assistant to mechanical engineer, successively. From 1912 to 1918 he was mechanical engineer for the Canadian Pacific, and from 1918 to 1923, chief mechanical engineer of that road. He was assistant to president of the Lima Locomotive Works at New York from 1923 to 1927, when he became vice-president of that company. In 1934 he became vice-president of the Franklin Railway Supply Company at Chicago, the position he held until 1939 when he became vice-president in charge of operations of the Baldwin Locomotive Company.

Mr. Peck was born at Pierson, Mich., on June 24, 1884, and was graduated from Michigan Agricultural College with the degree of B. S. in M. E. in 1907. He entered railroad service in 1907 as draftsman on the Duluth, South Shore & Atlantic at Marquette, Mich., holding this position until 1911. From the latter year until 1914 he was assigned to special duties in the mechanical engineer's office of the Atchison, Topeka & Santa Fe at Topeka, Kan. From 1914 to 1919 Mr. Peck was associate editor, Mechanical edition, Railway Age Gazette, New York, and from 1919 to 1923 served as Western mechanical editor of *Railway Age* and "Railway Mechanical Engineer" at Chicago. In 1923 Mr. Peck became managing editor of "Railway Mechanical Engineer" and mechanical department editor of *Railway Age*.

Maloney Believes Pelley, Not Ickes

(*Continued from page 588*)

use of the country's 140,000 tank cars. Mr. Moffett also charged that England had offered to return tankers which this country had lease-lent to it, but that Mr. Ickes had refused to take them back.

The charges of Mr. Moffett appeared to have struck pay dirt in view of the fact that Mr. Ickes announced on October 7 that it now appeared that Great Britain may soon release 10 to 15 of the tankers which this country transferred to it for use in the carrying out of the lease-lend program. Mr. Ickes did not say whether or not they would be used on the east coast to alleviate the oil shortage, but he did say that it was his hope that the release of these tankers would achieve additional defense benefits "without imposing a further load upon the east coast."

After telling the committee that the railroads are now moving some 80,000 barrels of oil per day into the East, Mr. Pelley presented to the committee a detailed breakdown of the location of all tank cars on the eastern seaboard. This survey was made on September 27 and showed a surplus of more than 24,000 cars, taking into account the number of cars needed to protect two days' loadings.

"The 80,000 barrels of oil per day which are now moving," asserted the A. A. R. president, "are being handled without difficulty. To haul the entire 200,000 barrels a day which I said we could move would mean a loading of 800 to 900 cars per day. The railroads are now loading in excess of 150,000 cars per day, so that this increase in daily loading would amount to

less than six-tenths of one per cent. To handle that presents no problem for the railroads."

Without mentioning Mr. Ickes by name, Mr. Pelley told the committee that his testimony did not impede the movement of oil. "We have made no effort to impose upon this committee, to deceive the American people, to trifle with the situation, or to stand in the way of national unity," asserted Mr. Pelley. "We have done no more than to tell the facts and move the oil that has been offered."

"Your committee has been told that the Association of American Railroads spends 'on propaganda and lobbying activities, sums so high as to be almost incredible, running to far over $100,000,000 for the period since 1918.' It is indeed almost incredible that anyone in a responsible position should continue to repeat this statement in view of the record, and of the number of times that its untruth has been exposed. It was made the last time in a monograph prepared for the Temporary National Economic Committee by members of that committee's staff and issued without any responsibility by the committee for its correctness. . . ."

"The sums mentioned as having been spent by the railroads 'on propaganda and lobbying activities' were actually those spent through the years by various associations and committees in doing for the railroads those things which can be done better by joint action than they can by each railroad individually. Nearly two-thirds of the sum mentioned was spent for the joint preparation and publication of tariffs as required by law. Other large amounts were spent on joint research projects, on the joint car service work which keeps track of freight cars all over the continent, and on many other like activities of the sort which no one railroad can well do for itself.

"The Association of American Railroads does represent the railroad industry. It represents it before committees of Congress whenever and wherever that is necessary. It presents the facts about the railroad industry both to Congress and to the public, through means which are open and aboveboard and well known. By far the greatest part of its work, however, deals with the direct daily operation of railroads."

"The record of the railroad industry since the present emergency arose two years ago," concluded Mr. Pelley, "is one that justifies confidence in our statements as to what we can do. We handled all the business offered in 1939, as we said we would do. We did the job again in 1940. We will do it again this year, and if we can get the material we need for the construction and maintenance of cars, locomotives and other facilities, we will do it next year. I can assure the committee of the desire and determination of the railroads to cooperate in every way with shippers and with departments of the government in furnishing the rail transportation which is so vitally necessary to our national defense. Our performance is known and appreciated by shippers and by government officials generally, especially by those who are in a position to know something about it. As an illustration, on last Thursday, September 25, the Honorable Clarence F. Lea, chairman of the committee on interstate and foreign commerce of the House of Representatives, said on the floor of the House: 'In all the world no job is being better done today than by the American railroads.'"

By a proclamation issued on October 1, President Roosevelt granted the power of eminent domain to the Portland Pipeline Company, under provisions of the Cole pipe line act, in connection with the construction of a petroleum line extending from Portland, Me., through New Hampshire and Vermont to the international boundary and thence through the province of Quebec, Canada, to Montreal.

The Car Service Division of the A. A. R. has asked all railroads to obtain and forward to it as promptly as possible a record of the total private line tank car loaded and empty mileage by months from January, 1939, to date. Following this initial statement, the division will also require a similar statement each month from now on.

As evidence that the major oil companies are living up to their recently-signed agreement to use all available tank cars to carry oil into the East, Mr. Ickes announced this week that some 3,135 cars moved into the east coast states during the week ended September 27. This was an average of 448 cars a day for the seven-day period, and was broken down into 2,222 carloads of crude oil and 917 carloads of petroleum products.

Meanwhile, eastern petroleum tank-truck operators met in Washington and offered to the Petroleum Coordinator the use of their idle or partially idle tank trucks in an effort to relieve the gasoline shortage on the eastern seaboard. At the same time the operators coupled their offer with a request to Mr. Ickes to take whatever action he deemed advisable to obtain the relaxation of state size and weight laws so that tank trucks could operate more freely.

It has also been learned that the project of the eastern oil companies to construct 36 tankers to take the place of those transferred to England and Russia has been abandoned due to the lack of shipbuilding facilities, labor and materials.

Representative Vinson, Democrat of Georgia, has introduced in the House H. Res. 310 which provides for a joint board which would be required to make a study of the feasibility of constructing a crude pipe line from the Texas fields to the Atlantic Seaboard. The Secretaries of War, Navy, and Interior and the Director-General of the Office of Production Management would each be directed to appoint two men who would constitute a board of eight to make the study. The board is further directed to report to Congress by not later than January 5, 1942.

A. G. F. A. Sees Need For Collective Action in Intra-city Switching

Collective action by the railroads to improve the flexibility of switching within large cities and speed up operation on terminal hauls was urged by W. J. Sheridan, assistant general freight agent, Baltimore & Ohio, Buffalo, N. Y., in a recent talk before the Central Railway Club at Buffalo. It was his opinion that the carriers should act to give all shippers on all lines serving a given point easy and convenient access to the roads in and out, with city-wide switching services gaged to manifest freight schedules. "There isn't a man big enough to get all the freight business nor did any industry locate on any given line with the thought of confining his business operations to points on a particular carrier. Geographically other lines should participate in his expansion."

Mr. Sheridan also criticized the railroads for delays in moving cars through terminals. "We run the wheels off the trains between New York and Buffalo; give overnight service—and then we stop . . . We may occasionally take two or three days to place a car on a siding, losing all the time we gained in the first instance." In illustration the speaker pointed to the case of a shipper located 19 mi. from Buffalo whose l.c.l. shipment was four days en route from Buffalo. "Our line, not to be outdone, consumed five days for about 14 mi."

Mr. Sheridan also suggested that the railroads try to pool pick-up and delivery services at large competitive points so that shippers platforms will not be congested by a large number of trucks from different roads. Over-the-road trucks constantly pile up at shippers' plants and the appearance of a number of p. & d. trucks from the railroads at the same time only aggravates the situation.

People's Opinions About the Railroads Are Changing

A lot of people who, a few years ago were feeling pretty discouraged about the outlook for the railroads, are now looking at things differently; because of the astonishing record the carriers have made in meeting recent traffic demands without a hitch. Such was the message of President R. B. White of the B. & O. to the annual transportation luncheon of the Illinois Chamber of Commerce on October 2.

"The same people who were 'selling the railroads short' during the depression turned instinctively to these very same railroads as the only transportation agency capable of handling the mass traffic load," Mr. White said. "And what has been the result? During this year the railroads are hauling about 25 per cent more tons of freight one mile than they were during the war year of 1918. And they are doing this without congestion, and with 500,000 fewer freight cars than they had in 1918. Furthermore, without interference with this heavy freight traffic, or with the largely increased passenger traffic they are now handling, they moved 1,855,000 members of the armed forces of the nation into training camps during the first eight months of this year as a part of their daily routine.

"When intercoastal shipping materially decreased because of the transfer of vessels engaged in that trade, for National Defense and other purposes, the railroads took up the slack, and continue to handle it, without blinking.

"You remember the anxiety caused in the industrial centers of the East by the month-long coal strike of last April. Storage coal got very low and some expressed concern as to our ability to move the huge extra tonnage demand that came with the re-

opening of the mines. Yet in the five months which followed we handled the abnormal current load and have gone a long way toward establishing normal reserves. And this is in addition to the extra load that has come from industries which, because of oil shortages, or failure of their water power caused by the drought, had to have coal to keep their plants running.

"Once the privately-owned tank cars were smoked out of hiding, the railroads jumped in to avert the Eastern oil shortage. They quickly agreed to substantially reduced temporary rates for petroleum transport, and told the government that as soon as the cars were furnished they could haul them fast enough to make up for the shortage of tankers and maintain the needed supply. And they have done so wherever the tanks have been offered for movement.

"This year's transport problem of the greatest moment was the spring wheat crop. Here the railroads had enough good cars in the field to haul all the grain that had a place to go—and with a surplus of more than 12,000 cars on hand to boot.

"In just one phase of national defense effort, alone, namely the construction of about 275 cantonments, ordnance and powder plants and the like, during 1940 and 1941, at a cost of approximately two billion dollars, all the material was delivered so smoothly and so dependably that not a single government project has lost any time on account of any failure of rail transportation.

"The railroads ask no one to regard all this as a miracle. But they do point to it as justification of the faith they have mainained in themselves during discouraging times; renewed evidence that they are the right hand of industry; proof that regardless of all else they were maintained adequately to meet the Nation's need.

"The shippers have responded in a spirit heretofore unheard of. Without their help in loading and unloading cars promptly, in loading to carload limits, and in other ways, the present high standard of railroad efficiency would be impossible. The shippers now realize that it is of the utmost importance to them to keep the railroads functioning as transportation agencies, and they have aided materially in preventing the use of freight cars as warehouses."

The speaker emphasized, however, that to continue to give adequate service, the railroads must have more cars and locomotives; and that it is up to the government to allocate materials for the construction of this equipment.

Farmers Oppose Taking Crossing Money for Pleasure Roads

When the citizens of New York state vote on November 4 whether an amendment should be added to the constitution permitting the state to divert money authorized for grade crossing eliminations to the construction of parkways and highways, farmers (if they follow the advice of their leaders) will probably write "no" on the ballot. The legislative committee of the state Grange has sent to all Grange units a letter which reads in part: "For 29 years, New York state has not borrowed to build roads. During all of these years we have paid cash for building of roads with part of the proceeds of the gasoline tax and license fees. Why abandon this frugal, economical method now and start to borrow? This will add to the cost by interest charges for us and our children to pay.

"The word 'diversion' in the amendment is misleading. The act of 1926 gave the legislature power to borrow $300,000,000 for elimination of railroad grade crossings. Some of the bonds have been sold, and the money raised, as needed for the crossings elimination. Amendment One now proposes to take from the balance of the $300,000,000 of bonds which as yet has been *unused* and *unsold,* $60,000,000 for parkways and highways. Bonds will then be sold to this amount and the proceeds used for parkways and highways.

"The $180,698,000 spent to date in eliminating railroad grade crossings has taken care of most of the dangerous city crossings. If Amendment One is passed, there will be little chance of ever eliminating the remaining dangerous railroad crossings most used by the farmers of the state. Farm labor will be an increasingly difficult problem for us. If Amendment One is passed, thousands of workmen will be building roads instead of working on the farm or in the war industries where they are desperately needed now. These pleasure parkways can wait for a more favorable time if they are needed at all."

St. Lawrence Seaway's "Potential Traffic" and "Savings"

Had the proposed St. Lawrence seaway been in existence during "the depression decade of 1928-37 or 1929-38" it might have attracted an annual traffic averaging over 4,600,000 short tons, "with a saving in freight rates of 14 to 17 million dollars after allowing for any additional insurance charges," according to the latest volume of the St. Lawrence Survey series which is being produced in the Department of Commerce under the direction of R. N. Danielian. The present document of 342 pages is Part III, Potential Traffic on the St. Lawrence Seaway; since five other parts have previously been issued, the survey will be completed with the forthcoming publication of a summary in Part VII.

The foregoing statement of what the "savings" might have been comes from Dr. Danielian's letter transmitting the study to Secretary of Commerce Jesse H. Jones; and the doctor goes on to suggest that "if the seaway is utilized by American interests to the extent of 10,000,000 tons of traffic annually, these savings in freight rates will be as much as $36,000,000 a year." Previously, the director had stated that the traffic studies of 17 selected commodities "do not purport to include all of the commodities which are produced or consumed in the Great Lakes area and which may utilize the seaway." Thus the reader is cautioned not to consider the results of such studies "as predictions or forecasts of what the total traffic will be in the future."

"In view of the many other commodities which are not analyzed in detail . . . and in view of the probability that this nation is unlikely to allow the conditions of the early 1930's to be repeated again," Dr. Danielian continued, "actual traffic in the future is indeed likely to be of much greater magnitude." Moreover, the seaway's traffic "will not consist *in toto* of a transfer of traffic from existing channels. . . . Instead, it will consist in large part of future new interregional and international trade both in quantity and in kind of goods." Such a development is said to have been the experience at Suez and Panama; and "it will surely be the case on the St. Lawrence."

In any event the death of railway traffic is expected to be a slow one. In that connection Dr. Danielian said: "The development of seaway traffic will probably be a matter of years and decades. The Suez Canal was built by de Lesseps upon the assumption that it would carry three million tons of traffic, and that at that level it would be a self-liquidating and even profitable enterprise. In fact, however, it was not until 10 years after completion that traffic reached three million tons. Thereafter traffic continued to increase, until in 1929 Suez carried 34½ million tons. A similarly slow growth in traffic occurred in the case of the Panama Canal which now exceeds the volume initially estimated. The same experience may be expected in the case of the seaway."

But aside from its "commercial justification," the seaway, as Dr. Danielian put it, "also stands the test of a more fundamental economic analysis—one based not upon the savings in rates by shifting existing traffic from other systems of transportation to the seaway, but based upon a comparison of the costs involved in carrying new increments of traffic." Assuming that the growth of the country will require new investment in transportation facilities, the survey undertakes to show that it would be cheaper to build the seaway than to expand rail facilities. The finding in that connection is summarized by Dr. Danielian as follows: "Assuming an incremental new traffic of 10,000,000 long tons achieved by 1955, the study reveals that new capital costs of railroads, not including fixed plant (trackage and terminal) facilities would be from $311,000,000 to $340,000,000 as compared with $235,000,000 for the seaway. On an annual basis, including fixed charges, amortization and depreciation on the foregoing investment as well as rail and ship operating costs, the annual cost would be, for high efficiency traffic, $92,000,000 via rail as compared with $21,000,000 via the seaway, and on low efficiency traffic, $86,000,000 on the railroads, as against $67,000,000 through the seaway. There is no question but that in terms of total *national cost* the seaway would provide a more economic method of carrying its portion of the increase in the traffic of the future."

Finally, the study finds that the seaway will be needed whichever way the war goes. If peace is established "under democratic auspices" an "unprecedented expansion of exports and imports" would follow; and the seaway "would take care of a small portion of the added traffic." If the axis powers win, the seaway "would be of immense advantage, because it will make available a new outlet to the sea, protected for a thousand miles nearer Europe, and because it ill make available the managerial ability, the skilled labor and the existing plants of a large number of shipyards on the Great Lakes."

Supply Trade

The Electrical Jobber Equipment Company of Minneapolis, Minn., has been appointed sales agent for the **Roller-Smith Company** in the states of Minnesota, North Dakota, South Dakota, and parts of Wisconsin.

C. C. Clark, sales manager of the Central district of the **Pressed Steel Car Co., Inc.,** with headquarters at Pittsburgh, Pa., has been appointed sales manager of the Western district, with headquarters at Chicago.

R. H. McCormick has been placed in charge of all advertising and sales promotion for the **Vascoloy-Ramet Corp.,** affiliate of the Fansteel Metallurgical Corp., to succeed **A. L. Percy. Mr. Percy** will continue as advertising manager of the Fansteel Metallurgical Corporation.

The Benwood-Linze Co., St. Louis, Mo., has taken over the sales and service of its B-L heavy portable railroad battery chargers and B-L battery chargers and will contact directly with the railroads rather than through a special sales representative as heretofore. The company recently moved into a new office and plant which more than doubled its manufacturing capacity.

Clem W. Gottschalk has been appointed general traffic manager of the **Jones & Laughlin Steel Corporation** to succeed **H. E. Graham,** who will retire November 1. Mr. Gottschalk has been assistant traffic manager since 1932 and has been with the Jones & Laughlin Steel Corporation since before the last World War. Prior thereto, he had been associated with the Erie as telegraph operator and local freight agent at the Kensington Avenue Station, Buffalo, N. Y. and later as rate clerk in the general agent's office at Pittsburgh, Pa. Mr. Graham was for ten years assistant to the president and general traffic manager. He came to Jones & Laughlin from the American Car & Foundry Co. where he had been associated for about 15 years.

Construction

CHERRY POINT.—This company has asked the Interstate Commerce Commission for authority to construct a new line extending from a connection with the Atlantic & East Carolina at Havelock, N. C., to Cherry Point, 1.4 miles. The line will serve the new United States Naval Air Base now under construction at Cherry Point, N. C.

PENNSYLVANIA — This company has awarded a contract to John Stapf for the construction of a 12-stall extension to its enginehouse at Enola, Pa.

PENNSYLVANIA — This company has awarded a contract to the Roberts & Schaefer Co. of Chicago for the construction of a coaling station at Wilmington, Del.

Equipment and Supplies

LOCOMOTIVES

THE DULUTH, MISSABE & IRON RANGE is reported to be inquiring for five steam locomotives of the 2-8-8-2 type.

THE BESSEMER & LAKE ERIE is inquiring for four steam locomotives including two of the 2-10-4 type and two of the 0-8-0 type.

THE UNITED STATES NAVY DEPARTMENT, Bureau of Supplies and Accounts, is asking for bids, October 17, on three Diesel-electric locomotives for delivery to Hingham, Mass.; Dahlgren, Va.; and Burns City, Ind.—schedule 8893.

THE UNITED STATES NAVY DEPARTMENT, Bureau of Supplies and Accounts, is asking for bids, October 21, on a total of seven Diesel-electric locomotives for delivery to naval ammunition depots as follows: one for Charleston, S. C.; three for Burns City, Ind.; two for Fallbrook, Cal.; and one for Hawthorne, Nev.—schedule 8857.

FREIGHT CARS

THE CENTRAL RAILROAD OF NEW JERSEY is inquiring for 50 covered cement hopper cars of 70 tons' capacity.

THE BESSEMER & LAKE ERIE is inquiring for 425 hopper cars of 90 tons' capacity and 500 gondola cars of 50 tons' capacity. The United States Steel Corporation was reported to be planning the purchase of this equipment for this road in the *Railway Age* of October 4.

THE UNITED STATES STEEL CORPORATION was reported in the *Railway Age* of October 4 as planning the purchase of a total of 2,635 freight cars, divided 2,335 cars for railroad companies and 300 for industrial companies controlled by this corporation. Later reports indicate these 300 cars have been reduced to 225 and are allocated as follows:

American Steel & Wire Co.: 65 70-ton gondola, 8 50-ton air dump.
Carnegie-Illinois Steel Corporation: 10 50-ton air dump, 10 70-ton air dump.
Michigan Limestone & Chemical Corporation: 10 50-cu. yd. air dump.
National Tube Company: 3 50-ton gondola, 95 70-ton gondola, 4 50-ton hopper, 10 70-ton hopper.
Tennessee Coal, Iron & R. R.: 10 70-ton hopper.

AIR RAID EXCURSIONS are the latest passenger traffic offering by a railroad. The Chinese National Railways, which operates a line out of Kunming, capital of the province of Yunnan, which has been subjected to severe and frequent bombing by Japanese airplanes, is now advertising "air raid excursions," according to the British "Railway Gazette." For less than a half-penny (1 cent) city inhabitants may ride out into the surrounding country, disembark at a quiet spot and take shelter until the raid is over.

Financial

CENTRAL OF NEW JERSEY.—*Abandonment.*—This company has been authorized by Division 4 of the Interstate Commerce Commission to abandon a part of its Lake Hopatcong branch between Morris County Junction, N. J., and Lake Hopatcong, 4.4 miles.

CHICAGO, ROCK ISLAND & PACIFIC.—*Reorganization Plan Modified.*—The Interstate Commerce Commission has issued certain corrections in its recent report modifying its final plan of reorganization for this company, details of which were given in the *Railway Age* of August 16, page 284. The only correction which affects that review of the commission's decision is one which recomputes the amount of new securities to be allocated to the holders of each Chicago, Rock Island & Pacific secured 4½ per cent, $1,000 bond. The new allocation, which corrects that shown at the bottom of page 284, is as follows: $65.98 in new first mortgage bonds, $261.81 in new general mortgage income bonds, $235.82 in new preferred stock, and $590.46 in new common stock, a total of $1,154.07.

CHESAPEAKE & OHIO.—*Acquisition of stock.*—The Chesapeake & Ohio, on October 2, filed an application with the Interstate Commerce Commission for authority to acquire certificates of deposit for 95,193 shares of 4 per cent prior lien stock of the Wheeling & Lake Erie from the New York, Chicago & St. Louis (Nickel Plate). The application states that the Nickel Plate, in addition to the proposed sale to the C. & O., proposes to sell to other parties certificates of deposit for an additional 20,000 shares of Wheeling prior lien stock and to use the funds realized from these sales, together with additional funds to be borrowed, for the purpose of redeeming, at 101½, $16,000,000 of Nickel Plate 4 per cent collateral trust notes, due October 1, 1946. The Nickel Plate will retain certificates of deposit for 14,800 shares of 5½ per cent preferred stock and 168,000 shares of common stock of the Wheeling, and upon the consummation of the proposed sales to the C. & O. and others, it and the C. & O. will together hold certificates of deposit representing slightly more than a majority of the total outstanding stock of the Wheeling.

The application states that the C. & O. proposes to acquire the certificates from Nickel Plate "at a price payable in cash to be fixed within narrow limits but not exceeding $101 per share, the exact figure to be determined at an early date, and in any event before the holding of a hearing" on the application; and further that this price will be fixed after the Nickel Plate shall have received offers, to be obtained under conditions introducing competition, for the certificates for 20,000 shares, and in the light of the offers so received.

The application points out that the proposed transaction will benefit the C. & O. directly by providing a sound investment for part of its surplus funds, and indirectly through the advantages which it would

bring to the Nickel Plate, in the common stock of which the C. & O. holds a 57 per cent interest. With respect to the Nickel Plate, the transaction would lead to the anticipation in part and the refunding at a lower rate of interest of the remainder of its next maturing bond obligation, and would place the Nickel Plate in possession of free collateral of a value estimated in the application at approximately $15,000,000. This sum would be available either for the retirement or the advantageous refunding of other indebtedness, or as a reserve in the event of unfavorable business conditions which may result upon the termination of the present European war.

DANSVILLE & MOUNT MORRIS.—*Extension of Maturity Date.*—This company has asked the Interstate Commerce Commission to extend to November 1, 1951, the date of maturity of $130,000 of this company's first mortgage five per cent bonds dated October 31, 1891.

DENVER & RIO GRANDE WESTERN.—*Equipment Trust Certificates.*—This company has been authorized by Division 4 of the Interstate Commerce Commission to assume liability for $1,260,000 of two per cent equipment trust certificates, maturing in 10 equal annual installments of $126,000 on November 1 in each of the years from 1942 to 1951, inclusive. The issue has been sold at 99.234 to Halsey, Stuart Co., Inc., of Chicago, Ill., making the average annual cost to the company approximately 2.15 per cent.

DETROIT, TOLEDO & IRONTON.—*Refinancing.*—This company has asked the Interstate Commerce Commission for authority to issue and sell $4,000,000 of serial notes, payable in equal annual installments of $400,000 on October 1 in each year over a period of 10 years and bearing interest at annual rates varying from 0.5 to 3.5 per cent, the proceeds to be used with other funds to call, as of January 1, 1942, at the call price of 105 plus accrued interest, the $4,229,000 of first mortgage five per cent bonds now outstanding.

The application also seeks authority to modify the present first and refunding mortgage bonds now outstanding in the amount of $9,626,000 and the first and refunding mortgage dated January 1, 1931, so as to advance the maturity date of the bonds from January 1, 1981, to January 1, 1967, to reduce the interest rate from five to four per cent, to change the designation of the first and refunding mortgage to first mortgage, to change the designation of the first and refunding mortgage five per cent gold bonds, series A, to first mortgage four per cent bonds, series A, and to make other changes in the first and refunding mortgage and the first and refunding mortgage bonds.

The issue has been sold, subject to I. C. C. approval, to Harriman, Ripley & Co., and the Mellon Securities Corporation at 98¾, and was re-offered publicly on October 3 at par and accrued interest.

The notes are redeemable at the company's option on any interest date, on 30 days' notice, or on any other date on 60 days' notice, at par and accrued interest plus a premium of 0.25 per cent on each six-month period or part thereof remaining from the date fixed for redemption to the date of maturity. Notes are to be redeemed in amounts of not less than $400,000 principal amount, and no notes are to be called for redemption unless all outstanding later maturing notes are simultaneously called.

So long as any of the notes are outstanding after January 1, 1942, the company will not declare any dividend other than those payable in stock, or buy or redeem any of its own stock of the aggregate amount of such dividends and distributions would exceed the company's aggregate net income from January 1, 1942, to the date of such declaration or distribution, or if such action would bring current assets to a point below current liabilities.

DULUTH, SOUTH SHORE & ATLANTIC.—*Redemption of Bonds.*—This company has asked the Interstate Commerce Commission for authority to borrow $250,000 and to execute a 2¾ per cent trustees' certificate maturing in installments of $8,350 per month, commencing January 1, 1942, and monthly thereafter until the full amount has been paid. The funds are to be used in part to redeem on December 1, $347,000 of South Shore Dock Company five per cent bonds now outstanding. The company estimates that it will make a net saving of $26,000 on the transaction.

ERIE.—*N. Y. L. E. & W. C. & R. bonds.*—E. F. Morgenroth, treasurer of this road at Cleveland, Ohio, has notified holders of first mortgage bonds of the New York, Lake Erie & Western Coal & Railroad Co., a subsidiary of the Erie, maturing May 1, 1942, that the company will pay off and redeem all presently outstanding Series A extended bonds issued under the first mortgage dated May 15, 1882, and advises them to present securities on or after November 1 at the office of the company, room 1073, 50 Church street, New York. Interest on the bonds designated for redemption will cease on and after redemption date. The mortgage under which the bonds were issued covers a number of branch lines serving a bituminous coal mining region in the vicinity of Bradford, Pa.

FLORIDA EAST COAST.—*Equipment Trust Certificates.*—Receivers for this road have applied to the Interstate Commerce Commission for approval of a plan whereby they would issue $1,000,000 of 2¾ per cent equipment trust certificates, series J, to be sold to the Reconstruction Finance Corporation at par for the purpose of financing approximately 90 per cent of the cost of three Diesel-electric locomotives, 60 freight cars, and six stainless-steel passenger-train cars. The certificates would mature in 20 semi-annual installments on each May 1 and November 1 from 1942 to 1951.

GULF, MOBILE & OHIO.—*Interlocking Directorate.*—The Interstate Commerce Commission has reopened the case wherein it denied William H. Coverdale the right to hold the position of director of this company and its subsidiaries while holding the position of director in several other railroad companies. The proceeding is reopened and assigned for further hearing at a time and place hereafter to be designated, but action on the request for oral argument has been deferred.

KENTUCKY & INDIANA TERMINAL.—*Pledge of Securities.*—This company has asked the Interstate Commerce Commission to continue its fifth supplemental order of April 16, 1940, for a further period of 18 months to June 30, 1943, during which time this company may pledge or repledge all or any part of $511,000 of its first mortgage 4½ per cent gold bonds as collateral security for short-term notes, the pledge to be maintained at a ratio of not more than $125 of bonds at the market price then prevailing, to $100 face amount of notes.

LAKE SUPERIOR & ISHPEMING.—*Stock.*—This company has been authorized by Division 4 of the Interstate Commerce Commission to issue 215,000 shares of capital stock of a par value of $20 a share, to be exchanged for 43,000 shares of authorized capital stock of a par value of $100 a share, in the ratio of five shares of the new stock for each share of existing stock. Certificates for 214,200 shares of the new stock will be distributed proportionately to existing shareholders in exchange for certificates for 42,840 shares of outstanding stock, and 800 shares of the new stock will be held for corporate purposes in lieu of 160 shares of the par value of $100 a share.

MISSOURI PACIFIC. — *Equipment Trust Certificates.*—This company has asked the Interstate Commerce Commission for authority to assume liability for $4,185,000 of equipment trust certificates, maturing in 15 equal annual installments of $279,000 on November 1 in each of the years from 1942 to 1956, inclusive. The proceeds will be used as 75 per cent of the purchase price of new equipment costing a total of $5,596,461 and consisting of 100 50-ton, 50 ft. 6 in. auto-parts cars; 50 70-ton covered cement cars; 800 50-ton, 40 ft. 6 in., all-steel sheathed box cars; 200 50-ton, 50 ft. 6 in. automobile cars; and 500 70-ton, 40 ft. 8 in. hopper cars.

NEW JERSEY & NEW YORK.—*Reorganization.*—This company has notified the Interstate Commerce Commission that on October 2 it filed with the United States District Court for the District of New Jersey a petition for reorganization under section 77 of the Bankruptcy Act and a request for the appointment of a trustee of trustees. The petition was filed by Frank B. Plympton, chairman of a group of holders of the road's securities.

The petition informs the commission that since 1938 the road has been operated under the jurisdiction of the United States District Court for the Northern District of Ohio by the trustees who also operated the Erie. Since the Erie reorganization plan made no provision for this company, it now seeks to be reorganized separately in another jurisdiction.

PERE MARQUETTE.—*Abandonment.*—This company has asked the Interstate Commerce Commission for authority to abandon a line extending from Ionia, Mich., northwesterly to a connection with its line be-

tween Elmdale, Mich., and Greenville, 11.9 miles.

ST. PAUL UNION DEPOT.—*Securities.*—This company has been authorized by Division 4 of the Interstate Commerce Commission to issue and sell $14,737,000 of first and refunding mortgage, series B bonds, to be dated October 1, 1941, and to mature October 1, 1971, and $900,000 of guaranteed notes, the proceeds to be used to refund its first and refunding mortgage five per cent gold bonds, series A, dated July 1, 1922, in the amount of $14,737,000, and maturing January 1, 1972.

At the same time the proprietary companies of the station, the Great Northern; Northern Pacific; Chicago, St. Paul, Minneapolis & Omaha; Chicago, Milwaukee, St. Paul & Pacific; Chicago, Burlington & Quincy; Chicago Great Western; Chicago, Rock Island & Pacific; and the Minneapolis, St. Paul & Sault Ste. Marie, have been authorized to guarantee the principal and interest on the new bonds. Details of the sale of the bonds were given in the *Railway Age* of September 20, page 467. The note has been sold to J. P. Morgan & Co., Inc., of New York City at one per cent. The company estimates that the total net saving to October 1, 1971, the maturity of the proposed bonds, will be approximately $9,343,560.

SPOKANE INTERNATIONAL.—*Issuance of securities.*—Reorganization managers for the Spokane International railway, a corporation recently organized to acquire and operate the properties of the Spokane International railway and the Coeur d'Arlene & Pend d'Oreille, according to the plan of reorganization for the latter companies, announced on October 1 that the reorganization has been consummated and that new securities and cash exchangeable for first mortgage 5 per cent bonds of the old companies were to be available on October 2. The reorganization plan, which was described in the *Railway Age* of May 6, 1939, page 788, provides that for each $1,000 principal amount of the old bonds there will be issued $600 income mortgage 4½s, Series A, dated February 1, 1940; escrow receipts for six shares of new common stock without par value and $56.25 in cash. From the latter there will be deducted such amount as may be withheld in respect of federal income taxes.

The reorganization managers stated that the earnings which would have been available for interest on the new income mortgage bonds for the three years from January 1, 1938, (effective date of the plan of reorganization) to December 31, 1940, amounted to about $90.34 per $1,000 bond or slightly over two year's interest. The court has ordered that this be paid at the time of delivery of the new securities in cash at the rate of $56.25 per $1,000 bond.

TIONESTA VALLEY.—*Abandonment.*—The Pennsylvania Public Utilities Commission has asked the Interstate Commerce Commission to dismiss this company's recent application wherein it seeks authority to abandon a line extending from Sheffield, Pa., to Sheffield Junction, 14 miles. The Pennsylvania Commission contends that the line is intrastate in character and that the I. C. C. has no jurisdiction over the proposed abandonment.

UNION PACIFIC.—*Equipment Trust Certificates.*—This road awarded a $13,250,000 issue of 1½ per cent equipment trust certificates to First Boston Corporation and associates, on October 8, on a bid of 99.94, representing an interest cost to the carrier of 1.505. The certificates, due in one to ten years, were immediately reoffered to the public at prices to yield 0.25 to 1.85, according to maturity.

WABASH. — *Abandonment.* — This company would not be permitted to abandon a branch line extending from Salisbury, Mo., to Glasgow, 15.4 miles, if Division 4 of the Interstate Commerce Commission adopts a recommended report of its Examiner A. G. Nye. On March 18, 1940, Division 4 denied this company authority to abandon the line without prejudice to its right to renew the application after the expiration of one year, if it could be shown that operations could be conducted only at a loss.

In the previous case Division 4 had said that the industries served by the branch should be given full opportunity to demonstrate their ability to provide sufficient traffic to insure continued operation on a profitable basis. "The evidence," writes Examiner Nye, "is not convincing that the line was operated at a loss during 1940 or part of 1941, because of the questionable allocation of a major portion of the operating expenses charged to it. The comparatively small losses during these periods might be converted into profits if adjustments were made in these costs. Furthermore, the estimated cost of overcoming deferred maintenance fails to carry with it any impression of definiteness or certainty."

"The evidence adduced by the protestants," concludes the Examiner, "indicates that the public uses the line only when it is to their advantage, or when weather conditions intervene. Because of the narrow margin upon which the branch is now operating they might well take notice that failure to patronize it in the future will mean its eventual abandonment. They should be given ample opportunity, however, to demonstrate their willingness and ability to supply sufficient traffic to warrant its continued operation."

The denial of the abandonment would be made without prejudice to the right of the company to renew its application after the expiration of a period of six months, if it can be shown with reasonable certainty that such operation can be conducted only at a loss.

Average Prices of Stocks and Bonds

	Oct. 7	Last week	Last year
Average price of 20 representative railway stocks..	29.46	29.53	29.89
Average price of 20 representative railway bonds..	64.55	63.65	60.29

Dividends Declared

Atlantic Coast Line.—5 Per Cent Non-Cumulative Preferred, $2.50, semi-annually, payable November 10 to holders of record October 24.

Cleveland, Cincinnati, Chicago & St. Louis.—5 Per Cent Preferred, $1.25, quarterly, payable October 31 to holders of record October 8.

Railway Officers

EXECUTIVE

C. A. Gill, vice-president in charge of operation and maintenance of the Reading and the Central of New Jersey, has also been elected to the same position on the New York & Long Branch.

Stanley J. How, secretary to the president of the Union Pacific, has been promoted to assistant to the vice-president in charge of operations, with headquarters as before at Omaha, Neb.

Charles D. Peckenpaugh, general manager of the Ft. Worth & Denver City and Wichita Valley, has been elected vice-president and general manager, succeeding **John A. Hulen,** vice-president of both roads, whose retirement on October 1, is reported elsewhere in these columns.

John D. Farrington, chief operating officer of the Chicago, Rock Island & Pacific, has been elected also president of the Burlington-Rock Island, succeeding **John A. Hulen,** who retired on October 1. Mr. Hulen was born at Centralia, Mo., on September 9, 1871, and attended Staunton Military Academy and Marmaduke Military Academy. In 1891 he entered the insurance business at Gainesville, Tex., and from 1898 to 1901, he engaged in military service, serving in the Spanish-American war and the Philippine Insurrection. He returned to the insurance business on the latter date and in 1903 he was appointed adjutant-general of Texas. In 1907 he entered railway service as city passenger agent for the St. Louis-San Francisco at Houston, Tex., later being promoted to commercial agent. In 1908 he was appointed general agent for the Frisco and the Rock Island at Houston and in 1910 he became general freight and passenger agent of the Trinity & Brazos Valley (now the Burlington-Rock Island). From 1920 to 1931 he served as receiver and president of Trinity & Brazos Valley and in 1936 he was elected president of the Burlington-Rock Island. In 1920 Mr. Hulen was also appointed traffic manager of the Ft. Worth & Denver City and the Wichita Valley and in 1930 he was elected a vice-president of those roads.

FINANCIAL, LEGAL AND ACCOUNTING

P. D. Fox, assistant to comptroller of the Pennsylvania, with headquarters at Philadelphia, Pa., has been appointed auditor of disbursements, with the same headquarters, succeeding **Harry J. Walker,** whose death on August 13 was reported in the *Railway Age* of August 23.

John A. Parnin, in the treasury department of the New York, Chicago & St. Louis (Nickel Plate), has been promoted to assistant treasurer, with headquarters as before at Cleveland, Ohio, suc-

ceeding **Raymond G. Eberly,** whose death on September 20, was reported in the *Railway Age* of October 4.

OPERATING

H. P. O'Rear has been appointed superintendent Atlanta terminals of the Southern, with headquarters at Atlanta, Ga.

O. L. Crain has been appointed trainmaster on the Missouri-Kansas-Texas, with headquarters at Parsons, Kan.

P. S. Lewis, general manager of the Reading and Central of New Jersey, has been appointed also general manager of the New York & Long Branch.

M. E. Welch, superintendent of the Grand Central terminal, Electric, Harlem and Putnam divisions of the New York Central, with headquarters at New York, will retire on October 31.

W. B. Simmons, trainmaster on the Chicago, Burlington & Quincy at Aurora, Ill., has been promoted to assistant superintendent, with headquarters at Daytons Bluff, Minn., succeeding **J. E. Carroll,** who has been granted a leave of absence.

J. A. Murphy, superintendent of transportation, Southern Ontario district, Canadian National, with headquarters at Toronto, Ont., has been appointed superintendent of the Stratford division, with headquarters at Stratford, Ont., succeeding **N. A. Walford,** whose transfer to the London (Ont.) division was reported in the *Railway Age* of September 20. **J. B. Reeve,** assistant superintendent at Hamilton, Ont., has been promoted to superintendent of transportation, Southern Ontario district, with headquarters at Toronto, succeeding Mr. Murphy.

E. E. Wright, superintendent of the Detroit division of the Michigan Central, with headquarters at Detroit, Mich., has been promoted to acting assistant general manager, with the same headquarters, succeeding **H. L. Margetts,** who has been granted a leave of absence because of ill health. **L. J. Robbins,** assistant superintendent of the Detroit division, has been appointed acting superintendent of that division, relieving Mr. Wright, and the position of assistant superintendent of the Detroit division will be vacant during Mr. Margetts' absence.. **W. H. Shearer** has been appointed trainmaster, with headquarters at West Detroit, Mich.

S. R. Lamb, assistant superintendent on the Canadian Pacific, with headquarters at Edmonton, Alta., has been promoted to superintendent of the Lethbridge division, with headquarters at Lethbridge, Alta., succeeding **W. H. Ruthven,** who retired on September 30.

Mr. Ruthven was born at Wallacetown, Ont., on April 30, 1876, and entered railway service in 1900 as a brakeman on the Canadian division of the Michigan Central. On August 16, 1901, he went with the Canadian Pacific as a brakeman at Kenora, Ont., later being promoted to conductor. On September 16, 1916, he was advanced to trainmaster at Minnedosa, Man., and on January 1, 1919, he was transferred to Moose Jaw, Sask. Mr. Ruthven was promoted to assistant superintendent at Revelstoke, B. C., on August 25, 1927, and on August 7, 1929, he was advanced to superintendent, with headquarters at Lethbridge, which position he held until his retirement.

J. J. McClory, whose appointment as superintendent of the Susquehanna division of the Railway Express Agency at Scranton, Pa., was reported in the *Railway Age* of September 6, entered express service at Buffalo, N. Y., in 1906, as a money wagon helper. He was subsequently advanced to depot agent and in 1916 became route agent at Rochester, later being transferred to Jersey City, N. J., and Bloomfield. For a year he was traveling auditor at Buffalo, becoming district accountant at Buffalo in December, 1920. In 1915 Mr. McClory was transferred to New York and in 1939 he became superintendent of organization of the Eastern departments at New York, serving in that capacity until his recent appointment.

J. J. McClory

Walter H. Hoffman, whose appointment as superintendent of the North Shore-Maine division of the Railway Express Agency at Boston, Mass., was reported in the *Railway Age* of September 6; began his express service in 1904 at Norwich, N. Y. He later served as clerk, driver and cashier at Utica, N. Y., becoming agent at Princeton, N. J., in 1910. Two years later he was transferred to Scranton, Pa., and in 1917 he became route agent, Terminal division, New York, serving first at Hoboken terminal and later at Communipaw. In March, 1939, Mr. Hoffman was appointed special representative to the general manager and a month later became chief clerk to general manager. He then became assistant superintendent, Vehicle division, at New York, the position he held until his recent appointment.

Walter H. Hoffman

J. T. Arey, assistant terminal trainmaster on the Southern Pacific, has been promoted to assistant terminal superintendent in charge of the East Oakland (Cal.) yard. **Thomas Goodwin,** assistant terminal trainmaster, has been advanced to assistant terminal superintendent at Richmond, Cal. **E. J. Dignon,** yardmaster, has been appointed terminal trainmaster at West Oakland. **A. D. Hazlett,** general yardmaster, has been appointed terminal trainmaster at Tracy, Cal. **Tim Rose,** a conductor, has been promoted to trainmaster at Ashland, Ore.

TRAFFIC

C. G. White has been appointed freight service representative of the Chesapeake & Ohio at Washington, D. C.

Harry T. Worthley has been appointed general agent for the Missouri & Arkansas at Shreveport, La.

Carl W. Dilli, William L. Taylor and **Samuel R. Goodman** have been appointed assistants to the freight traffic manager of the Southern, with headquarters at Washington, D. C.

J. C. Conn, assistant general passenger agent for the Southern, with headquarters at Atlanta, Ga., has retired after 50 years of continuous service with that road. He will be succeeded by **H. Turney Henderson.**

C. R. Reeble, division freight agent for the Atchison, Topeka & Santa Fe at Joplin, Mo., has been promoted to assistant general livestock agent with headquarters at Kansas City, Kan., succeeding **Charles R. Gilfillan,** who has retired.

H. T. Henderson, city passenger agent of the Southern, with headquarters at Chattanooga, Tenn., has been appointed general baggage agent, with headquarters at Atlanta, Ga. **W. H. Russell** has been apponted assistant general freight agent at Atlanta.

John Oliver Hamilton, who retired on October 1, 1939, as assistant general freight agent on the Kansas City Southern at Kansas City, Mo., died on September 23 at Chattanooga, Tenn. At one time Mr. Hamilton served as general freight agent for the K. C. S. at Texarkana, Ark.

Charles B. Kerr, whose promotion to general freight agent, rates and divisions, of the Minneapolis & St. Louis, with headquarters at Minneapolis, Minn., was reported in the *Railway Age* of October 4,

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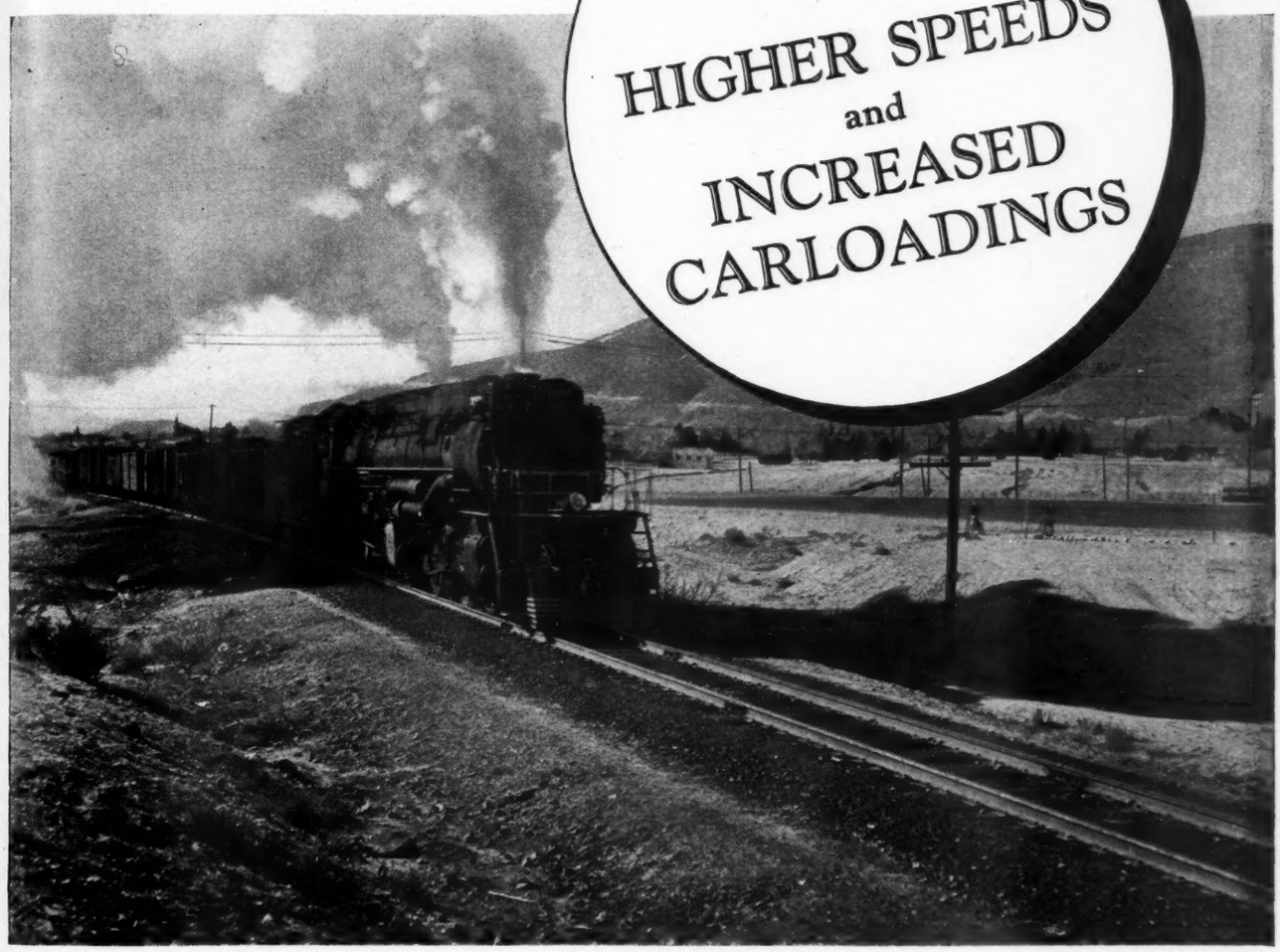
You can have both



With modern super power steam locomotives

Carloadings are on the way up and shippers are demanding quicker deliveries. You can meet both these urgent demands effectively by installing NEW MODERN STEAM POWER.

LIMA LOCOMOTIVE WORKS LIMA LOCOMOTIVE WORKS INCORPORATED **INCORPORATED, LIMA, OHIO**

was born in Minneapolis, Minn., and attended the University of Minnesota Evening School. After two years service in the general office of Swift and Company at

Charles B. Kerr

St. Paul, Minn., he entered railway service with the M. & St. L. on November 1, 1928, serving in various capacities in the tariff bureau at Minneapolis. On December 15, 1936, he was promoted to chief of the tariff bureau and on March 15, 1939, he was advanced to assistant general freight agent, which position he held until his recent promotion, effective October 1.

C. F. Wiegele, assistant to the general manager of the Indiana Harbor Belt, the Chicago Junction Railway and the Chicago River & Indiana, has been appointed assistant general manager of the same roads, with headquarters as before at the Union Stock yards, Chicago.

G. C. Dew, general foreign freight agent of the Canadian Pacific, with headquarters at Montreal, Que., has been appointed foreign freight traffic manager, succeeding **W. M. Kirkpatrick,** whose services have been loaned to the Canadian organization of the Ministry of War Transport of the United Kingdom. **W. J. Furlong** has been appointed general foreign freight agent, succeeding Mr. Dew.

Fred Hawk, superintendent of the Scranton division of the New York, Ontario & Western, with headquarters at Childs, Pa., has been promoted to superintendent of transportation, with headquarters at Middletown, N. Y. **T. E. Brochu,** superintendent of the Southern division, with headquarters at Middletown, has resigned after 46 years of service, because of continued ill health. The positions of superintendents of the Scranton and Southern divisions have been discontinued. **E. J. Pryor** has been appointed assistant trainmaster, with headquarters at Mayfield Yard, Pa. **R. W. Crans** has been appointed assistant trainsmaster, with headquarters at Norwich, N. Y. **Guy S. Bennett** has been appointed trainmaster and general road foreman of engines, with headquarters at Middletown, having jurisdiction over the entire system. **J. R. Hadley,** assistant superintendent at Norwich, has been appointed assistant to the superintendent of transportation, with the same headquarters, having jurisdiction over the entire system.

ENGINEERING & SIGNALING

H. S. Thomas, engineer of construction of the Seaboard Air Line, with headquarters at Norfolk, Va., retired from service on September 30. Mr. Thomas was born at Berryville, Va., and attended Shenandoah University School, Berryville, Va., and the University of Virginia. For more than 10 years before going with the Seaboard Air Line, he served with the Norfolk & Western, the Atlantic Coast Line, the West Virginia Central & Pittsburgh (now the Western Maryland), the Mobile & Ohio (now part of the Gulf, Mobile & Ohio), the Louisville & Nashville and the Virginian. He entered the service of the Seaboard Air Line in 1903 as a division engineer, later being appointed successively locating engineer, engineer in charge and engineer of construction. In 1927 he was promoted to chief construction engineer, with headquarters at Norfolk and on May 1, 1930, his title was changed to engineer of construction.

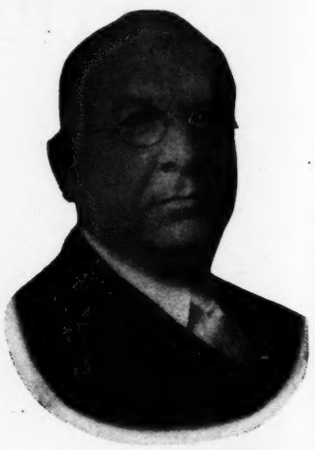
A. B. Stone, bridge engineer of the Norfolk & Western, with headquarters at Roanoke, Va., whose promotion to assistant chief engineer, with the same headquarters was announced in the *Railway Age* of October 4, entered the service of the Norfolk & Southern in July, 1912, as a draftsman in the office of the chief engineer. On February 1, 1929, he was promoted to chief structural draftsman, and in November, 1930, Mr. Stone was appointed bridge

A. B. Stone

engineer, the position he held until his recent promotion. His work will include the designing and supervision of the construction of the railway's large low-level lake-type coal pier No. 5, at Lambert Point (Norfolk, Va.); the design of the company's large warehouses at Norfolk; the renewal of many important bridges, and the construction of large shop and terminal buildings over the system.

OBITUARY

Charles Frederick Smith, manager of passenger transportation of the New York Central System at New York, whose death on September 28 was reported in the *Railway Age* of October 4, was born on June 17, 1873, at New York. He entered railroad service in 1886 as telegraph messenger with the New York Central & Hudson River (now New York Central),



Charles Frederick Smith

serving in that capacity and as mail boy until 1888, when he became clerk to division superintendent. From 1889 to 1890 Mr. Smith was stenographer to assistant general superintendent and to general superintendent, then serving as clerk and timekeeper, secretary to general manager, chief clerk to superintendent and to general superintendent, successively. In 1902 Mr. Smith was appointed superintendent passenger transportation, becoming assistant general superintendent the following year. From 1906 to 1910 he served as general superintendent and from 1910 to 1928 he was general superintendent passenger transportation. During 1918 Mr. Smith served also as general manager of transportation, American Railway Express Company. Mr. Smith became manager of passenger transportation of the New York Central in 1929, the position he held until his death.

Oliver B. Webb, assistant to the president of the Texas & Pacific, with headquarters at New Orleans, La., whose death on September 24, was reported in the *Railway Age* of October 4, was born at Roswell, Ga., on December 13, 1873, and entered railway service in January, 1887 as a messenger boy in the operating department of the Texas & Pacific. Later in that year he was transferred to the general passenger office and in May, 1889, he was promoted to stenographer in the office of the superintendent of transportation. He was advanced to secretary to the vice-president and general manager in May, 1892, and in 1899 was promoted to assistant chief clerk. Mr. Webb was advanced to city passenger and ticket agent at New Orleans in 1904, and he held this position until 1910, when he was promoted to district passenger and ticket agent. During the period of government operation, Mr. Webb was appointed superintendent of safety, and in March, 1920, he was appointed assistant general passenger agent, with headquarters at Dallas, Tex. He remained in that position until May, 1924, when he was promoted to assistant to the president, with headquarters at New Orleans, which position he held until his death.

Table of Revenue and Expenses begins on next left-hand page

ELIMINATE THE PISTON VALVE

THE FRANKLIN SYSTEM OF Steam Distribution

The introduction of The Franklin System of Steam Distribution has effectively exploded the old theory that the boiler was the restricting factor that governed the hauling capacity of a locomotive. The extensive tests that were made in conjunction with the development of The Franklin System of Steam Distribution graphically show that the controlling factor of the locomotive's output is the ability to handle the intake and exhaust steam.

Through separate control of the valve events, larger intake and exhaust passages, and multiple poppet valves The Franklin System of Steam Distribution is able to get ⅓ more work out of each pound of steam — *result:* ⅓ increase in train load-speed capacity.

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF AUGUST AND EIGHT MONTHS OF CALENDAR YEAR 1941

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income 1941	Net railway operating income 1940
Akron, Canton & Youngstown	Aug.	171	$275,231	$57	$286,535	$48,083	$25,793	$14,761	$79,642	$176,653	61.7	$109,882	$82,338	$64,612	$45,847
	8 mos.	171	1,956,593	333	2,049,854	262,897	186,924	113,443	555,264	1,195,421	58.3	854,433	633,357	499,034	270,110
Alton	Aug.	959	1,349,716	257,402	1,812,528	235,583	262,695	46,077	647,086	1,264,274	69.8	548,254	442,382	256,404	—94,933
	8 mos.	959	9,317,171	2,002,630	13,034,359	1,538,251	2,012,331	373,055	4,961,121	9,467,355	72.6	3,567,004	2,747,696	1,275,295	—276,315
Atchison, Topeka & Santa Fe System	Aug.	13,431	16,844,779	2,368,806	20,628,256	2,492,189	3,710,165	475,405	6,263,764	13,308,095	64.5	7,320,161	5,280,415	5,275,455	2,253,419
	8 mos.	13,431	116,868,037	14,839,679	142,312,871	17,931,976	27,680,649	3,845,770	45,876,079	98,336,668	69.1	43,976,203	25,955,351	25,618,916	11,686,640
Atlanta & West Point	Aug.	93	160,885	34,618	218,973	17,832	30,032	9,050	78,696	147,013	67.1	71,960	44,456	29,360	11,306
	8 mos.	93	1,127,036	243,837	1,563,138	153,166	233,366	70,878	595,150	1,141,198	73.0	421,940	256,693	126,240	—21,765
Western of Alabama	Aug.	133	154,652	33,955	205,999	22,889	33,588	8,479	70,729	145,621	70.7	60,378	33,012	32,949	18,740
	8 mos.	133	1,093,976	246,608	1,497,911	195,439	274,346	66,473	539,645	1,154,321	77.1	343,590	175,578	163,085	87,152
Atlanta, Birmingham & Coast	Aug.	639	405,570	23,638	447,817	48,962	58,605	24,954	163,953	309,425	69.1	138,392	100,006	70,364	—28,672
	8 mos.	639	2,617,900	248,752	3,032,172	406,746	470,895	198,678	1,184,693	2,389,043	78.8	643,129	416,168	158,037	—186,159
Atlantic Coast Line	Aug.	5,075	3,865,361	852,575	5,124,489	480,292	1,049,860	154,473	1,799,979	3,676,156	71.7	1,448,333	948,333	884,449	44,749
	8 mos.	5,094	32,689,440	8,453,403	44,817,547	3,750,107	7,628,502	1,316,600	15,525,268	30,010,852	67.0	14,806,695	9,981,695	8,372,043	1,000,611
Charleston & Western Carolina	Aug.	343	285,171	2,988	294,362	31,748	37,116	9,071	84,073	168,435	57.2	125,927	65,927	63,095	30,667
	8 mos.	343	2,194,888	20,127	2,260,865	222,470	289,515	75,147	658,192	1,292,830	57.2	968,035	653,035	614,617	285,016
Baltimore & Ohio	Aug,	6,370	18,969,082	1,315,671	21,375,375	1,910,466	4,422,318	437,152	6,291,711	13,717,388	64.2	7,657,987	6,228,350	5,903,036	3,326,319
	8 mos.	6,376	128,973,635	9,031,389	145,642,117	13,351,171	32,581,599	3,384,844	46,775,978	100,986,225	69.3	44,655,892	35,762,124	32,991,383	17,911,613
Staten Island Rapid Transit	Aug.	24	68,544	79,496	160,108	13,827	24,719	1,146	81,615	132,678	82.9	27,430	912	—7,281	—18,362
	8 mos.	24	539,043	562,107	1,179,760	109,897	177,716	8,961	633,071	1,021,842	86.6	157,918	—48,240	—115,398	—178,910
Bangor & Aroostook	Aug.	603	247,886	21,849	291,207	84,419	81,657	6,071	97,221	290,258	99.7	949	—25,198	19,856	—41,278
	8 mos.	603	3,562,978	159,373	3,877,192	694,146	703,422	43,440	995,544	2,615,946	67.5	1,261,246	785,604	926,134	702,621
Bessemer & Lake Erie	Aug.	216	2,172,493	733	2,185,235	118,804	380,659	13,312	281,731	827,017	37.8	1,358,218	1,027,174	1,107,684	1,139,663
	8 mos.	218	13,274,699	5,429	13,378,211	1,007,861	2,841,147	99,521	1,985,324	6,206,923	46.4	7,171,288	5,044,218	5,710,870	4,345,852
Boston & Maine	Aug.	1,906	3,844,961	928,768	5,296,699	708,002	764,051	64,464	1,786,589	3,478,992	65.7	1,817,707	1,255,907	949,343	592,209
	8 mos.	1,906	28,943,412	5,430,343	38,468,727	4,569,036	5,254,612	534,762	13,613,326	25,263,336	65.7	13,205,391	9,186,043	6,961,311	3,989,280
Burlington, Rock Island	Aug.	251	63,795	25,810	98,624	17,492	15,016	4,380	42,521	89,239	90.5	9,385	—109	—2,415	6,971
	8 mos.	253	566,017	170,215	803,089	135,374	120,315	35,911	346,590	719,094	89.5	83,995	8,477	—28,001	—97,733
Cambria & Indiana	Aug.	38	174,779	.....	174,880	12,224	58,385	428	15,315	91,910	52.6	82,970	11,554	83,813	80,524
	8 mos.	38	1,197,325	.....	1,198,167	74,734	482,508	3,527	113,352	722,270	60.3	475,897	55,525	573,872	623,383
Canadian Pacific Lines in Maine	Aug.	234	140,856	23,830	182,373	52,681	37,810	6,995	63,186	167,756	92.0	14,617	—141	—12,007	—20,915
	8 mos.	234	2,353,590	135,296	2,607,341	299,272	447,212	52,585	884,947	1,732,498	66.4	874,843	766,156	555,182	405,268
Canadian Pacific Lines in Vermont	Aug.	91	101,201	10,628	121,963	28,749	22,780	2,326	75,417	132,996	109.0	—11,033	—19,546	—42,334	—32,861
	8 mos.	91	779,028	60,316	923,343	143,582	182,326	17,782	588,852	957,888	103.7	—34,545	—92,156	—267,650	—309,753
Central of Georgia	Aug.	1,864	1,592,905	186,895	1,917,044	202,665	297,216	54,859	657,267	1,283,345	66.9	633,699	463,410	448,898	—3,775
	8 mos.	1,864	11,566,587	1,345,340	14,172,387	1,515,645	2,412,791	443,425	5,219,259	10,263,630	72.4	3,908,757	2,845,589	2,636,361	21,900
Central of New Jersey	Aug.	706	3,433,174	499,997	4,207,890	392,894	725,306	49,510	1,472,710	2,748,067	65.3	1,459,823	1,204,650	968,541	58,503
	8 mos.	710	23,660,457	3,057,141	28,414,542	2,617,072	5,848,665	374,234	10,663,249	20,273,813	71.3	8,140,729	4,967,026	3,447,790	656,804
Central Vermont	Aug.	422	637,539	52,631	735,008	107,999	90,375	12,026	249,054	474,787	64.6	260,221	232,215	183,439	62,402
	8 mos.	422	4,611,026	271,531	5,189,971	603,018	716,741	92,083	1,984,814	3,540,324	68.2	1,649,647	1,435,112	1,062,865	453,408
Chesapeake & Ohio	Aug.	3,124	14,248,704	486,089	15,242,989	1,171,618	2,134,568	211,882	3,033,127	6,842,200	44.9	8,400,789	4,591,409	4,777,303	4,319,784
	8 mos.	3,121	88,919,215	3,072,578	95,247,862	8,955,822	16,466,451	1,667,245	21,235,839	50,727,830	53.3	44,520,032	26,942,376	27,633,491	27,878,771
Chicago & Eastern Illinois	Aug.	925	1,205,770	201,555	1,573,476	212,545	290,683	53,433	529,862	1,149,186	73.0	424,290	302,290	173,145	132,849
	8 mos.	925	9,399,777	1,368,961	12,087,736	1,383,570	2,129,516	458,962	4,321,163	8,826,863	73.0	3,260,873	2,418,873	1,413,478	192,677
Chicago & Illinois Midland	Aug.	131	492,342	716	515,254	75,371	61,877	19,631	100,605	275,548	53.5	239,706	114,697	105,891	90,680
	8 mos.	131	3,188,850	5,163	3,347,632	374,295	496,169	169,862	761,624	1,953,730	58.4	1,393,902	824,427	775,920	723,886
Chicago & North Western	Aug.	8,308	8,437,106	1,277,044	10,611,690	1,274,490	1,773,095	196,760	3,463,312	7,046,586	66.4	3,565,104	2,727,078	2,349,149	1,613,728
	8 mos.	8,315	55,159,998	8,492,416	70,544,001	8,810,092	12,547,230	1,563,450	25,099,515	50,636,477	71.8	19,907,524	13,888,351	12,066,431	3,759,238
Chicago, Burlington & Quincy	Aug.	9,120	9,176,206	1,155,633	11,376,832	1,547,133	1,683,448	230,917	3,385,026	7,162,545	63.0	4,214,287	2,802,032	2,448,330	1,126,181
	8 mos.	8,999	60,083,683	7,077,003	74,745,316	10,095,131	12,384,286	1,996,390	24,708,103	51,627,340	69.1	23,117,976	14,667,977	12,412,108	4,758,923
Chicago Great Western	Aug.	1,502	1,745,784	46,489	1,914,483	202,537	238,659	62,699	614,247	1,173,136	61.3	741,347	522,015	307,935	125,040
	8 mos.	1,502	12,468,229	403,637	13,779,650	1,523,916	1,885,421	488,468	4,788,824	9,139,814	66.3	4,639,836	3,371,549	1,844,584	465,219
Chicago, Indianapolis & Louisville	Aug.	549	836,468	28,617	938,581	114,872	144,128	27,246	283,621	598,071	63.7	340,510	298,225	213,833	106,149
	8 mos.	549	6,029,122	283,416	6,886,168	688,488	1,218,869	217,448	2,261,735	4,641,081	67.4	2,245,087	1,889,623	1,185,130	706,640

Continued on next left-hand page

"Tailor Made"

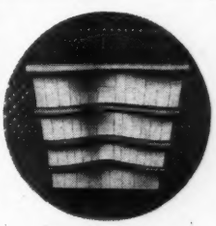
YET STANDARDIZED!

Each Security Arch is "tailor made" to suit the individual class of power in which it must function. But so effectively is Security Arch Brick standardized that only six different Security Brick patterns are needed for more than 50% of the Security Arch Brick used.

This high standardization reflects the engineering and experience of the American Arch Company.

It simplifies the application of the brick arch and saves the stores department a vast amount of trouble.

This foresight of the American Arch Company in adhering to standards is but one of the many ways in which the American Arch Company is serving the railroads.



There's More to
SECURITY ARCHES
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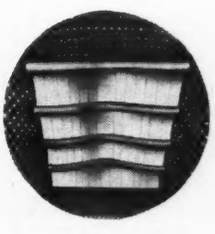
Refractory Specialists



AMERICAN ARCH CO.
INCORPORATED
60 EAST 42nd STREET, NEW YORK, N. Y.
Locomotive Combustion Specialists

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF AUGUST AND EIGHT MONTHS OF CALENDAR YEAR 1941—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income 1941	Net railway operating income 1940
Chicago, Milwaukee, St. Paul & Pacific	Aug.	10,854	$11,362,002	$1,025,661	$13,562,208	$1,993,417	$1,881,770	$258,606	$4,125,679	$8,694,185	64.1	$4,868,023	$4,051,023	$3,575,268	$1,865,588
	8 mos.	10,854	74,302,035	6,272,420	88,803,541	12,597,641	14,334,959	1,876,923	29,710,187	61,735,040	69.5	27,068,501	21,045,501	17,990,893	5,371,854
Chicago, Rock Island & Pacific	Aug.	7,944	7,206,066	966,862	8,756,973	1,284,404	1,292,325	270,817	2,726,415	5,870,143	67.0	2,886,830	2,402,024	2,035,937	395,690
	8 mos.	7,957	51,898,598	7,018,810	63,443,352	7,863,380	10,195,906	2,153,584	21,188,304	44,028,000	69.4	19,415,352	15,480,325	12,531,179	3,592,166
Chicago, St. Paul, Minneapolis & Omaha	Aug.	1,629	1,644,585	175,943	1,947,302	260,620	269,927	40,062	717,787	1,355,076	69.6	592,226	461,946	339,876	168,304
	8 mos.	1,629	10,760,518	1,114,239	12,764,024	1,631,930	2,082,164	317,322	5,417,493	9,977,992	78.2	2,786,032	1,856,228	980,839	—337,255
Clinchfield Railroad	Aug.	308	934,624	9,229	950,113	39,405	126,281	19,675	175,842	377,653	39.7	572,460	458,790	482,542	181,459
	8 mos.	308	7,134,851	42,023	7,224,998	361,702	982,415	158,128	1,288,431	2,931,305	40.6	4,293,693	3,640,610	3,720,758	2,403,994
Colorado & Southern	Aug.	759	638,834	58,233	756,279	85,791	128,264	13,798	238,463	494,453	65.4	261,826	211,463	176,460	2,586
	8 mos.	772	4,308,676	377,938	5,187,320	759,819	955,459	106,238	1,778,276	3,816,602	73.6	1,370,718	863,244	641,199	—186,971
Fort Worth & Denver City	Aug.	804	461,019	64,886	604,906	73,184	79,666	17,771	181,429	382,760	63.3	222,146	184,955	138,063	49,596
	8 mos.	804	3,162,124	421,596	4,180,920	519,369	633,910	150,581	1,373,147	2,931,826	70.1	1,249,094	956,045	651,399	504,957
Colorado & Wyoming	Aug.	42	91,011	.....	137,660	9,478	9,880	864	42,429	66,782	48.5	70,878	33,290	32,623	27,618
	8 mos.	42	696,322	.....	1,077,211	78,101	86,301	5,545	343,736	548,415	50.9	528,796	287,604	282,862	254,141
Columbus & Greenville	Aug.	168	105,527	3,585	115,063	15,928	18,616	5,197	36,433	88,623	77.0	26,440	13,939	13,282	15,473
	8 mos.	168	781,471	24,472	854,924	116,300	136,513	39,852	282,092	676,273	79.1	178,651	84,957	90,545	27,826
Delaware & Hudson	Aug.	849	3,120,203	113,090	3,340,509	291,841	516,501	42,554	987,089	1,926,648	57.7	1,413,861	1,138,116	1,078,465	561,136
	8 mos.	849	20,258,151	640,223	21,615,296	2,191,944	3,871,149	339,704	7,171,104	14,246,767	65.9	7,368,529	5,841,367	5,453,372	3,554,716
Delaware, Lackawanna & Western	Aug.	995	4,337,856	593,240	5,446,215	482,111	899,547	111,026	2,058,494	3,690,499	67.8	1,755,716	1,079,516	1,042,808	363,084
	8 mos.	995	31,446,341	4,300,510	39,628,008	2,551,024	6,935,535	893,713	15,939,421	27,476,902	69.3	12,151,106	7,671,206	7,340,732	3,531,470
Denver & Rio Grande Western	Aug.	2,547	2,680,911	196,141	3,015,038	338,629	569,296	88,360	980,707	2,078,966	69.0	936,072	732,266	674,286	318,401
	8 mos.	2,548	16,250,277	1,131,423	18,267,358	2,367,187	4,715,121	679,648	6,431,515	14,962,779	81.9	3,304,579	1,663,180	1,473,153	240,990
Denver & Salt Lake	Aug.	232	221,121	6,446	237,861	31,549	45,907	2,431	65,085	154,455	64.9	83,406	57,855	105,400	104,787
	8 mos.	232	1,241,513	41,465	1,359,055	243,042	346,888	21,014	453,019	1,141,060	84.0	217,995	17,238	406,880	453,924
Detroit & Mackinac	Aug.	242	62,808	2,896	72,956	18,528	13,959	821	26,280	62,737	86.0	10,219	6,569	2,299	23,096
	8 mos.	242	414,572	19,505	500,196	101,828	90,258	7,396	200,232	425,046	85.0	75,150	47,697	16,439	47,601
Detroit & Toledo Shore Line	Aug.	50	351,190	.....	352,259	28,914	22,874	8,501	87,927	155,763	44.2	196,496	130,783	68,103	60,324
	8 mos.	50	2,843,605	.....	2,850,590	222,901	193,532	69,814	697,300	1,242,446	43.6	1,608,144	1,149,013	647,526	560,134
Detroit, Toledo & Ironton	Aug.	472	582,692	328	620,464	66,276	85,852	12,742	150,479	337,480	54.4	282,984	187,659	170,628	86,673
	8 mos.	472	5,801,580	1,965	6,054,918	457,138	778,653	101,771	1,284,337	2,783,313	46.0	3,271,605	2,271,676	2,025,259	1,480,527
Duluth, Missabe & Iron Range	Aug.	542	4,444,320	2,822	5,146,483	278,311	258,651	4,486	655,316	1,230,508	23.9	3,915,975	3,195,856	3,200,779	2,522,330
	8 mos.	542	19,904,930	16,861	23,032,381	1,735,073	1,993,991	34,255	3,533,751	7,568,280	32.9	15,464,101	10,637,260	10,627,849	6,984,655
Duluth, Winnipeg & Pacific	Aug.	175	141,628	1,368	147,220	27,556	21,802	2,068	55,265	110,102	74.8	37,118	25,125	11,060	—2,614
	8 mos.	175	1,066,359	8,833	1,101,322	194,568	166,988	16,281	433,584	841,624	76.4	259,698	173,958	45,752	—21,033
Elgin, Joliet & Eastern	Aug.	390	2,347,780	3	2,669,877	220,969	333,347	14,971	790,511	1,391,459	52.1	1,278,418	915,124	736,942	499,964
	8 mos.	390	16,806,571	29	19,161,514	1,432,490	2,614,169	122,804	6,143,678	10,640,603	55.5	8,520,911	6,030,304	4,767,674	2,724,585
Erie	Aug.	2,257	8,638,873	478,536	9,662,215	894,603	1,646,007	192,322	3,217,829	6,216,713	64.3	3,445,502	2,497,851	2,079,425	1,441,367
	8 mos.	2,259	61,414,148	3,167,112	68,785,759	5,345,625	11,780,097	1,478,980	24,173,528	44,932,036	65.3	23,853,723	17,157,784	14,383,082	7,649,979
Florida East Coast	Aug.	685	402,337	170,785	634,192	133,068	180,064	26,043	235,120	612,995	96.7	21,197	—49,884	—56,245	—125,684
	8 mos.	685	4,313,572	2,873,064	8,060,470	1,011,635	1,321,095	243,275	2,674,587	5,776,361	71.7	2,284,109	1,692,632	1,203,025	788,834
Georgia Railroad	Aug.	329	408,638	31,490	464,544	55,937	71,998	19,425	170,165	330,081	71.1	134,463	117,082	118,944	73,455
	8 mos.	329	2,910,639	207,605	3,326,887	363,738	529,424	151,917	1,262,782	2,419,841	72.7	907,046	776,988	792,603	391,421
Georgia & Florida	Aug.	408	180,225	2,356	186,584	25,785	17,638	10,417	51,798	111,149	59.6	75,435	66,991	53,638	37,339
	8 mos.	408	925,422	12,479	968,714	193,288	143,297	72,926	336,846	789,255	81.5	179,459	115,294	57,881	—48,997
Grand Trunk Western	Aug.	1,029	2,095,523	116,032	2,398,616	278,084	386,861	40,514	873,149	1,643,485	68.5	755,131	616,903	467,682	241,991
	8 mos.	1,029	18,251,438	693,557	20,297,264	2,101,814	3,377,941	313,259	7,332,023	13,662,864	67.3	6,634,400	5,567,067	4,549,773	2,049,492
Canadian National Lines in New England	Aug.	172	143,468	5,244	158,018	70,941	31,605	2,655	60,524	171,173	108.3	—13,155	—29,298	—68,241	—78,938
	8 mos.	172	1,038,347	23,164	1,210,703	339,407	170,951	21,292	514,494	1,119,622	92.5	91,081	—38,064	—403,255	—516,738
Great Northern	Aug.	8,073	12,175,723	549,893	13,768,122	1,673,775	1,575,951	201,088	3,254,536	6,982,189	50.7	6,785,933	4,129,903	3,915,139	3,559,431
	8 mos.	8,070	68,325,623	3,236,283	77,789,843	10,645,455	12,249,117	1,657,937	21,480,908	48,107,403	61.8	29,682,440	19,313,420	18,710,769	12,553,377
Green Bay & Western	Aug.	234	162,446	328	168,779	35,930	16,855	8,680	50,032	116,830	69.2	51,949	32,047	20,448	20,470
	8 mos.	234	1,265,498	2,524	1,310,698	249,955	139,366	68,537	392,261	892,700	68.1	417,998	280,364	201,799	139,220
Gulf & Ship Island	Aug.	259	128,016	11,216	152,029	23,971	17,068	2,693	58,465	107,469	70.7	44,560	26,975	14,442	—40,344
	8 mos.	259	938,027	105,563	1,126,949	178,167	162,014	22,367	450,133	849,116	75.3	277,833	138,230	45,612	—188,075

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The *Invisible* Part is important

Invisible to the eye . . . the roots supply the tree with life-giving food and moisture obtained from the soil. If the roots are damaged, the tree soon shows evidence and later dies.

In a similar way, locomotive superheater units . . . also invisible to the eye . . . supply the locomotive cylinders with superheated steam. If the internal surfaces are not kept free of restrictions . . . the result will be reduced cylinder horsepower and inefficient operation.

Superheater units can be remanufactured by the Elesco service at about half the price of new units. It is a guarantee that the invisible and visible parts will be like new — in a condition to give many more years of service. Standardize on this service and save money for your railroad.

A-1446

SUPERHEATERS • FEEDWATER HEATERS
AMERICAN THROTTLES • STEAM DRYERS
EXHAUST STEAM INJECTORS • PYROMETERS

THE SUPERHEATER COMPANY

Representative of
AMERICAN THROTTLE COMPANY, INC.
60 East 42nd Street • NEW YORK
122 S. Michigan Avenue • CHICAGO
• • •
Montreal, Canada
THE SUPERHEATER COMPANY, LTD.

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF AUGUST AND EIGHT MONTHS OF CALENDAR YEAR 1941—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income 1941	Net railway operating income 1940
Gulf, Mobile & Ohio	Aug.	1,973	$2,010,856	$63,745	$2,144,032	$293,810	$302,158	$87,293	$581,900	$1,351,695	63.0	$792,337	$512,337	$388,840	$192,441
	8 mos.	1,973	14,257,862	390,037	15,238,208	2,063,440	2,322,642	675,229	4,333,438	10,155,177	66.6	5,083,031	3,297,531	2,464,014	698,916
Illinois Central	Aug.	4,951	9,277,306	1,068,418	11,033,063	1,349,928	2,356,281	204,513	3,431,494	7,728,671	70.1	3,304,392	1,829,195	1,711,980	893,787
	8 mos.	4,951	65,023,017	7,403,396	78,138,592	8,451,476	16,652,099	1,671,484	26,115,623	55,668,553	71.2	22,470,039	15,107,581	15,015,161	6,649,014
Yazoo & Mississippi Valley	Aug.	1,570	1,630,489	102,994	1,810,099	157,518	268,824	31,294	599,967	1,109,096	61.3	701,003	556,207	484,083	166,334
	8 mos.	1,584	10,392,044	594,243	11,648,954	1,117,984	1,790,316	258,912	4,260,311	7,809,954	67.0	3,839,000	2,656,275	2,249,137	781,631
Illinois Central System	Aug.	6,521	10,907,795	1,171,412	12,843,162	1,507,446	2,625,105	235,807	4,031,461	8,837,767	68.8	4,005,395	2,383,282	2,203,976	1,069,033
	8 mos.	6,535	75,415,061	7,997,639	89,787,546	9,569,460	18,442,415	1,930,396	30,375,934	63,478,507	70.7	26,309,039	17,746,967	17,331,601	7,502,948
Illinois Terminal	Aug.	477	540,012	75,206	690,704	60,156	72,388	17,886	188,174	355,961	51.5	334,743	242,687	213,694	126,717
	8 mos.	477	3,588,562	518,350	4,561,697	454,981	584,043	142,296	1,422,537	2,748,803	60.3	1,812,894	1,286,014	1,096,176	760,567
Kansas City Southern	Aug.	879	1,522,530	87,279	1,733,238	256,089	252,330	55,141	459,045	1,082,187	62.4	651,051	491,051	387,423	275,924
	8 mos.	879	10,191,777	525,550	11,741,825	1,276,839	1,818,997	442,069	3,295,078	7,311,683	62.3	4,430,142	3,438,142	2,760,711	2,164,932
Kansas, Oklahoma & Gulf	Aug.	328	210,329	439	213,317	22,463	16,731	8,881	43,656	102,543	48.1	110,774	79,417	61,356	28,708
	8 mos.	328	1,604,971	3,265	1,627,956	129,261	92,582	69,991	353,657	728,243	44.7	899,713	700,669	562,900	463,225
Lake Superior & Ishpeming	Aug.	156	364,395	51	441,745	33,733	27,091	972	65,359	134,530	30.5	307,215	—45,151	—41,505	287,418
	8 mos.	156	2,011,064	489	2,431,195	231,938	223,257	5,395	375,916	894,917	36.8	1,536,278	741,151	773,940	927,647
Lehigh & Hudson River	Aug.	96	199,145	.....	199,623	25,865	24,988	4,607	51,853	113,128	56.7	86,495	42,867	28,176	19,953
	8 mos.	96	1,407,970	.....	1,415,594	154,086	216,370	30,637	396,611	846,316	59.8	569,278	324,399	229,587	143,888
Lehigh & New England	Aug.	190	559,056	.....	562,496	37,830	68,448	6,865	149,599	279,417	49.7	283,079	127,635	117,633	106,260
	8 mos.	190	3,430,315	.....	3,455,182	257,750	511,005	58,353	1,005,190	1,955,971	56.6	1,499,211	970,526	983,306	776,646
Lehigh Valley	Aug.	1,268	4,720,255	219,178	5,187,571	428,288	760,353	103,065	1,859,684	3,287,112	63.4	1,900,459	1,373,310	1,155,745	505,304
	8 mos.	1,269	33,369,844	1,401,315	36,763,913	2,874,825	5,684,188	848,446	13,767,197	24,241,130	65.9	12,522,783	9,257,470	7,393,879	4,122,940
Louisiana & Arkansas	Aug.	881	852,071	49,123	936,238	149,616	108,746	29,215	223,795	540,069	57.7	396,169	286,793	211,679	121,192
	8 mos.	881	6,147,053	215,642	6,612,795	1,044,979	811,333	233,369	1,619,742	3,949,308	59.7	2,663,487	1,939,775	1,429,101	984,395
Louisville & Nashville	Aug.	4,803	9,160,976	807,556	10,447,418	866,769	1,873,213	176,753	3,157,037	6,362,375	60.9	4,085,043	2,423,218	2,689,162	1,457,091
	8 mos.	4,843	65,950,221	5,603,703	75,827,820	7,343,059	14,819,179	1,453,084	23,864,945	49,731,479	65.6	26,096,341	15,077,057	16,413,101	10,613,348
Maine Central	Aug.	991	992,772	155,725	1,248,482	179,762	222,386	12,280	403,014	853,368	68.4	395,114	307,662	285,294	95,327
	8 mos.	991	8,308,890	745,600	9,812,560	1,272,245	1,612,552	94,696	3,263,357	6,511,853	66.4	3,300,707	2,356,664	1,978,380	1,304,019
Midland Valley	Aug.	352	139,845	2	143,976	16,224	6,970	2,471	34,738	64,689	44.9	79,287	67,916	57,492	30,415
	8 mos.	352	872,449	41	890,824	112,208	75,855	19,287	248,712	503,117	56.5	387,707	300,382	235,241	196,692
Minneapolis & St. Louis	Aug.	1,409	1,019,613	11,169	1,066,780	191,038	128,967	51,134	299,528	708,864	66.4	357,916	295,836	247,258	244,356
	8 mos.	1,409	6,566,032	85,021	6,931,656	1,241,495	1,076,838	400,909	2,298,895	5,321,335	76.8	1,610,321	1,211,593	880,400	540,642
Minneapolis, St. Paul & Sault Ste. Marie	Aug.	4,271	3,364,149	151,382	3,758,198	475,722	417,523	64,297	1,168,347	2,228,446	59.3	1,529,752	1,231,502	1,130,719	874,267
	8 mos.	4,270	20,611,832	670,179	22,916,441	3,539,660	3,361,222	506,821	8,322,920	16,516,745	72.1	6,399,696	4,417,528	3,682,808	2,162,406
Duluth, South Shore & Atlantic	Aug.	550	320,596	9,973	361,315	61,850	40,240	6,907	104,516	219,886	60.9	141,429	124,192	117,880	30,430
	8 mos.	550	1,918,951	60,153	2,146,075	461,194	319,981	57,640	706,602	1,596,791	74.4	549,284	421,407	392,328	182,463
Spokane International	Aug.	152	86,079	736	93,363	19,497	6,640	2,352	24,625	56,777	60.8	36,586	30,823	24,000	24,560
	8 mos.	152	571,448	5,226	631,616	144,286	53,749	18,117	183,228	428,639	67.9	202,977	159,441	125,279	61,212
Mississippi Central	Aug.	158	96,915	104	98,087	33,566	12,114	7,710	21,690	78,843	80.4	19,244	13,681	6,496	—22,350
	8 mos.	158	759,833	20,545	792,055	196,626	93,968	61,739	178,106	563,178	71.1	228,877	169,938	121,566	—76,654
Missouri & Arkansas	Aug.	365	107,579	1,660	116,595	30,686	13,608	6,783	36,575	92,832	79.6	23,763	18,963	8,682	11,190
	8 mos.	365	822,284	11,560	891,862	219,817	99,420	60,391	291,823	713,473	80.0	178,389	141,800	56,465	48,777
Missouri-Illinois	Aug.	193	246,567	201	249,181	38,415	22,731	2,928	59,292	129,289	51.9	119,892	75,559	55,821	38,338
	8 mos.	193	1,709,745	1,554	1,725,409	237,483	180,332	25,606	408,616	894,181	51.8	831,228	542,664	434,097	345,423
Missouri-Kansas-Texas Lines	Aug.	3,293	2,781,008	220,903	3,245,176	371,989	490,193	106,248	1,026,683	2,113,868	65.1	1,131,308	901,869	646,753	66,730
	8 mos.	3,293	18,474,679	1,693,071	22,061,659	2,974,667	3,483,234	857,445	7,723,588	16,025,978	72.6	6,035,681	4,462,609	2,795,014	925,193
Missouri Pacific	Aug.	7,139	8,453,068	737,980	9,959,091	1,280,195	1,572,593	242,960	3,001,587	6,395,138	64.2	3,563,953	2,972,135	2,611,006	666,356
	8 mos.	7,143	59,521,532	5,164,389	70,486,588	9,246,768	12,215,854	1,979,101	22,847,324	48,464,548	68.8	22,022,040	17,760,925	14,621,738	4,676,284
Gulf Coast Lines	Aug.	1,772	1,206,059	59,894	1,341,702	200,070	194,046	45,001	432,864	925,543	68.98	416,159	338,696	263,750	108,817
	8 mos.	1,772	10,071,127	379,890	11,041,936	1,606,071	1,511,704	351,481	3,379,624	7,286,617	65.99	3,755,319	3,135,323	2,293,606	1,716,630
International Great Northern	Aug.	1,155	978,680	134,197	1,245,527	187,989	213,479	29,475	441,226	930,654	74.7	314,873	247,172	187,145	31,125
	8 mos.	1,155	7,245,586	755,992	8,948,439	1,374,573	1,575,792	231,118	3,439,124	7,073,491	79.0	1,874,948	1,355,049	793,485	—253,701
Monongahela	Aug.	172	612,645	885	616,525	50,763	38,596	541	115,728	208,895	33.9	407,630	361,459	266,946	168,728
	8 mos.	172	3,661,022	4,848	3,683,934	313,280	254,448	3,987	796,618	1,395,131	37.9	2,288,803	1,930,456	1,269,044	1,067,290

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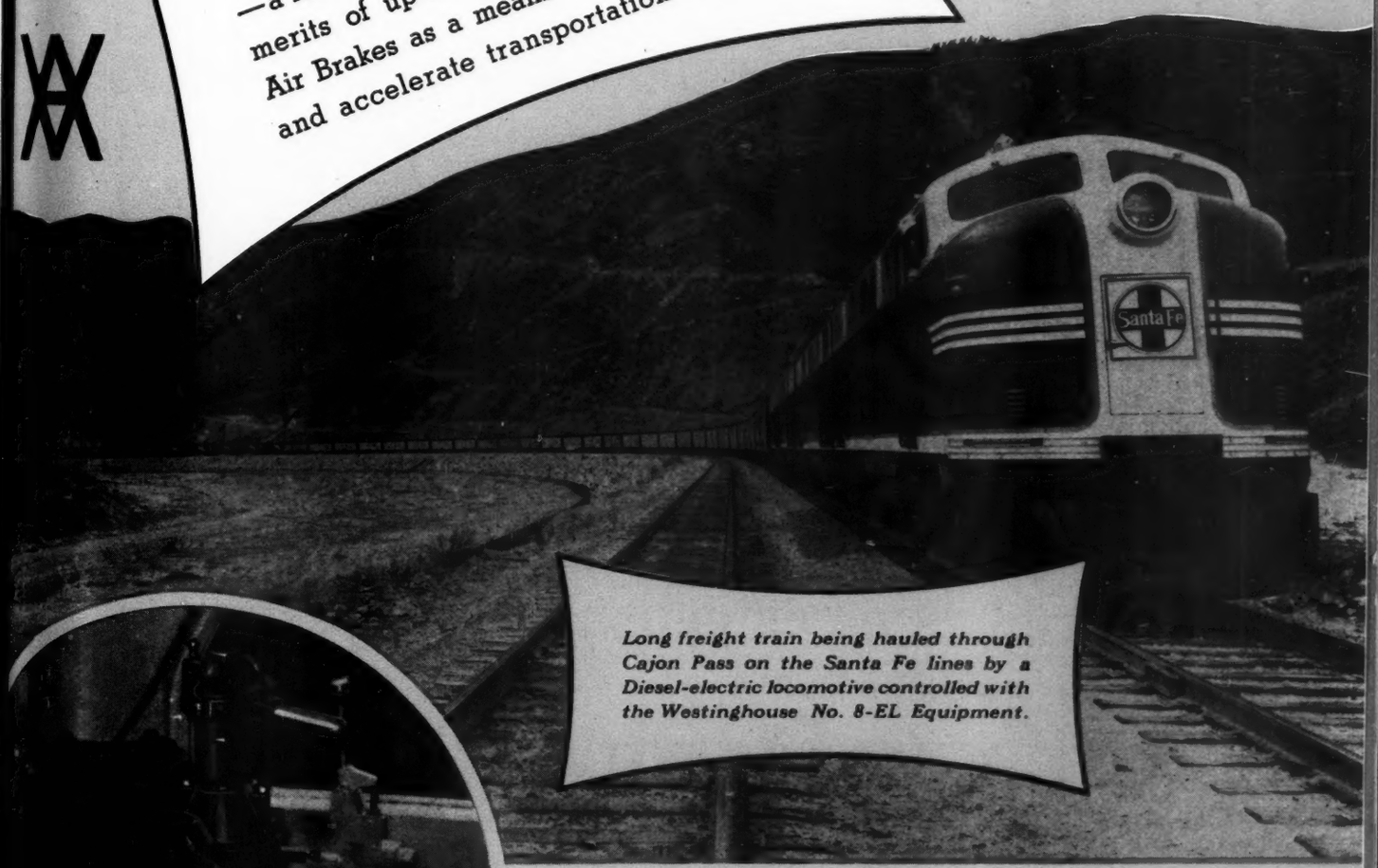
. . . Westinghouse AIR BRAKES

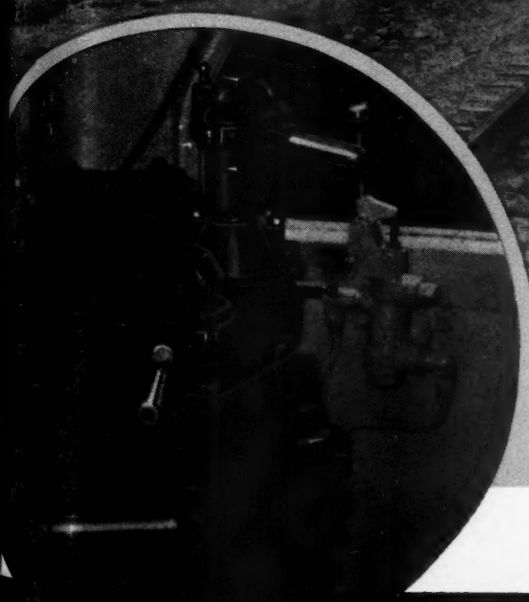
Control

DIESEL-ELECTRIC FREIGHT POWER

All those air brake characteristics recognized as essential for modern train-handling—adequate and flexible control, ease and convenience of manipulation, and continued integrity of performance—are embodied in the equipment now available for Diesel-electric freight power . . . It is proving eminently satisfactory on the many locomotives of this new type now in service—a further demonstration of the traditional merits of up-to-the-minute Westinghouse Air Brakes as a means to help safeguard and accelerate transportation facilities.



Long freight train being hauled through Cajon Pass on the Santa Fe lines by a Diesel-electric locomotive controlled with the Westinghouse No. 8-EL Equipment.



WESTINGHOUSE . . . .
AIR BRAKE COMPANY

WILMERDING, PENNSYLVANIA

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF AUGUST AND EIGHT MONTHS OF CALENDAR YEAR 1941—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues			Operating expenses					Operating ratio	Net from railway operation	Operating income	Net railway operating income	
			Freight	Passenger	Total (inc. misc.)	Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total				1941	1940
Montour	Aug.	51	$244,956	$.....	$246,385	$13,581	$47,608	$709	$54,769	$123,611	50.2	$122,774	$56,564	$88,205	$105,554
	8 mos.	51	1,501,019	97	1,512,532	95,310	354,580	5,822	362,370	870,638	57.6	641,894	326,216	535,872	604,632
Nashville, Chattanooga & St. Louis	Aug.	1,111	1,322,587	137,242	1,584,261	179,925	287,287	66,064	581,178	1,162,035	73.3	422,226	275,921	268,805	128,812
	8 mos.	1,111	10,339,207	1,117,134	12,554,579	1,256,298	2,104,965	547,536	4,530,972	8,902,367	70.9	3,652,212	2,445,137	2,172,271	1,064,593
Nevada Northern	Aug.	165	56,627	831	60,474	9,388	3,680	1,365	8,721	28,758	47.6	31,716	17,253	19,306	27,516
	8 mos.	165	422,330	4,841	463,031	72,545	27,527	10,128	86,267	246,519	53.2	216,512	109,631	126,174	182,701
New York Central	Aug.	10,939	29,085,538	6,341,100	39,262,610	5,238,830	7,445,921	562,182	13,438,645	28,064,213	71.5	11,198,397	7,146,817	5,836,145	4,029,717
	8 mos.	10,942	215,440,583	43,129,887	287,450,298	31,171,906	58,020,083	4,385,709	101,810,254	205,960,401	71.7	81,489,897	49,649,995	39,683,439	23,077,005
Pittsburgh & Lake Erie	Aug.	232	2,689,860	53,052	2,813,822	243,374	737,253	35,421	727,401	1,826,291	64.9	987,531	261,190	680,996	737,167
	8 mos.	232	18,306,896	367,848	19,190,054	1,630,070	5,687,817	292,302	5,359,686	13,639,695	71.1	5,550,359	2,004,955	4,816,866	3,399,993
New York, Chicago & St. Louis	Aug.	1,703	5,222,099	97,356	5,452,515	484,682	651,191	121,440	1,567,435	2,949,836	54.1	2,502,679	1,977,956	1,625,180	863,609
	8 mos.	1,704	36,595,771	589,118	38,138,471	3,295,329	4,927,037	963,884	11,749,318	21,941,849	57.5	16,196,622	12,387,320	9,718,163	4,590,740
New York, New Haven & Hartford	Aug.	1,848	6,033,716	3,208,060	10,043,523	1,177,681	1,417,955	120,546	3,245,613	6,373,973	63.5	3,669,550	2,893,300	2,074,743	719,712
	8 mos.	1,851	43,381,072	19,973,164	69,477,498	8,045,857	10,651,456	932,762	24,391,771	47,220,615	68.0	22,256,883	17,061,883	11,116,455	3,706,204
New York Connecting	Aug.	21	451,197	.....	461,787	56,847	11,699	.....	39,364	109,269	23.7	352,518	305,306	345,866	120,890
	8 mos.	21	3,031,726	.....	3,119,543	395,192	82,172	.....	281,908	770,615	24.7	2,348,928	1,981,489	2,234,115	849,394
New York, Ontario & Western	Aug.	576	480,277	106,205	634,389	56,424	116,089	16,250	291,216	499,340	78.7	135,049	89,092	53,043	—26,561
	8 mos.	576	3,434,466	309,897	4,129,071	419,074	827,143	140,641	2,104,594	3,653,967	88.5	475,104	119,838	—156,936	—505,119
New York, Susquehanna & Western	Aug.	132	273,593	25,762	311,830	23,729	30,847	2,320	115,553	182,697	58.6	129,133	99,212	71,284	—1,752
	8 mos.	141	2,128,717	212,804	2,461,957	173,717	213,068	18,461	939,916	1,426,675	57.9	1,035,282	797,773	505,538	293,331
Norfolk & Western	Aug.	2,189	11,184,281	336,978	11,773,269	1,051,703	1,879,547	148,117	2,081,462	5,389,968	45.8	6,383,301	2,663,032	3,148,035	2,790,984
	8 mos.	2,190	73,368,502	2,521,769	77,856,243	7,646,345	15,416,226	1,195,227	15,624,968	41,535,654	53.3	36,320,589	18,893,576	21,446,429	22,046,053
Norfolk Southern	Aug.	733	466,945	8,713	489,664	77,394	58,736	26,004	156,449	335,742	68.6	153,922	121,015	99,469	14,630
	8 mos.	733	3,410,882	41,378	3,563,029	613,657	441,302	196,696	1,213,773	2,634,494	73.9	928,535	670,407	501,644	49,612
Northern Pacific	Aug.	6,711	7,565,869	434,572	8,614,958	849,416	1,369,745	175,357	2,513,194	5,222,854	60.6	3,392,104	2,499,435	2,806,139	1,705,964
	8 mos.	6,717	44,847,739	2,916,645	51,902,999	6,094,295	9,934,243	1,379,800	16,927,679	36,628,486	70.6	15,274,513	9,720,067	12,452,560	6,852,504
Northwestern Pacific	Aug.	352	383,704	10,007	413,537	56,783	58,522	1,915	161,354	303,101	73.3	110,436	90,781	70,387	55,339
	8 mos.	352	2,008,906	93,360	2,249,035	490,494	395,645	20,203	1,016,982	2,087,121	92.8	161,914	483	—127,531	—297,462
Oklahoma City-Ada-Atoka	Aug.	132	27,985	.....	28,574	7,799	527	840	8,646	18,930	66.2	9,644	7,186	3,166	—1,912
	8 mos.	132	185,920	—6	189,607	39,324	7,581	5,548	66,817	129,303	68.2	60,304	41,063	11,560	—13,034
Pennsylvania	Aug.	10,246	44,464,357	7,987,121	56,621,217	6,503,787	12,371,012	725,621	18,435,636	39,493,613	69.8	17,127,604	10,851,519	10,283,738	8,024,567
	8 mos.	10,246	302,392,278	56,996,862	390,058,958	41,091,691	87,937,930	5,818,725	134,111,956	280,019,830	71.8	110,039,128	66,905,155	62,487,728	51,357,442
Long Island	Aug.	379	847,476	1,822,117	2,794,497	257,883	352,697	10,417	1,063,118	1,743,795	62.4	1,050,702	541,773	342,707	275,330
	8 mos.	379	5,988,399	11,122,452	18,024,604	1,743,109	2,783,879	73,620	7,800,602	12,745,367	70.7	5,279,237	2,458,849	986,971	354,344
Pennsylvania-Reading Seashore Lines	Aug.	410	473,114	715,085	1,228,638	86,666	92,336	8,677	438,670	642,556	52.3	586,082	437,118	255,754	—60,286
	8 mos.	410	2,893,404	2,077,332	5,205,968	706,192	784,872	59,749	2,615,878	4,289,659	82.4	916,309	129,597	—729,660	—1,362,364
Pere Marquette	Aug.	2,102	2,812,807	139,597	3,205,525	440,817	642,367	70,186	1,125,297	2,391,414	74.6	814,111	514,814	404,709	402,019
	8 mos.	2,102	23,563,877	754,703	25,740,784	3,089,767	4,873,331	527,223	8,855,039	18,183,424	70.6	7,557,360	5,080,017	4,210,513	2,201,230
Pittsburg & Shawmut	Aug.	98	90,853	.....	91,146	17,793	18,568	1,694	22,512	62,012	68.0	29,134	26,098	17,929	41,961
	8 mos.	98	652,831	.....	655,241	103,514	144,886	14,684	169,008	463,234	70.7	192,007	170,590	120,786	221,417
Pittsburgh & West Virginia	Aug.	136	434,517	87	453,101	96,010	81,567	19,059	95,779	313,534	69.2	139,567	107,673	115,684	91,543
	8 mos.	136	3,242,957	331	3,396,775	601,376	579,954	149,736	703,319	2,205,445	64.9	1,191,330	939,029	979,349	584,556
Pittsburg, Shawmut & Northern	Aug.	190	145,008	.....	147,459	19,783	26,988	1,245	50,674	103,820	70.4	43,639	36,754	25,223	13,326
	8 mos.	190	981,166	.....	990,032	126,194	146,710	8,539	324,830	652,455	65.9	337,577	290,154	203,628	119,339
Reading	Aug.	1,431	6,494,311	347,870	7,204,783	497,102	1,434,045	69,410	2,256,199	4,410,595	61.2	2,794,188	1,632,693	1,601,915	1,107,633
	8 mos.	1,437	46,426,068	2,394,026	51,100,132	4,128,830	10,266,890	560,450	17,465,322	33,601,789	65.8	17,498,343	11,286,250	10,692,919	8,133,057
Richmond, Fredericksburg & Potomac	Aug.	118	663,222	357,336	1,124,090	132,059	161,932	10,673	318,020	663,317	59.0	460,773	280,651	237,406	86,901
	8 mos.	118	4,909,756	3,244,674	9,136,547	753,030	1,332,085	76,562	2,881,987	5,478,660	60.0	3,657,887	2,452,708	1,868,163	604,456
Rutland	Aug.	407	245,920	36,934	344,176	39,620	69,332	10,411	156,251	285,855	83.1	58,321	39,042	41,764	—8,115
	8 mos.	407	1,813,759	212,698	2,480,658	283,377	494,718	83,749	1,238,102	2,192,168	88.4	288,490	141,995	150,334	—74,074
St. Louis-San Francisco	Aug	4,764	4,207,512	466,422	5,045,143	546,534	968,338	119,569	1,711,453	3,529,988	70.0	1,515,155	1,163,948	1,241,701	387,064
	8 mos.	4,768	31,716,835	2,990,817	37,656,970	4,572,637	7,480,483	972,209	13,117,161	27,578,124	73.2	10,078,846	7,375,658	7,458,806	1,921,163
St. Louis, San Francisco & Texas	Aug.	159	186,227	5,295	197,558	23,332	15,586	8,470	56,972	110,576	56.0	86,982	78,276	53,814	—19,270
	8 mos.	159	1,180,155	14,955	1,236,029	187,238	122,063	65,458	441,783	859,341	69.5	376,688	309,349	97,234	—151,344

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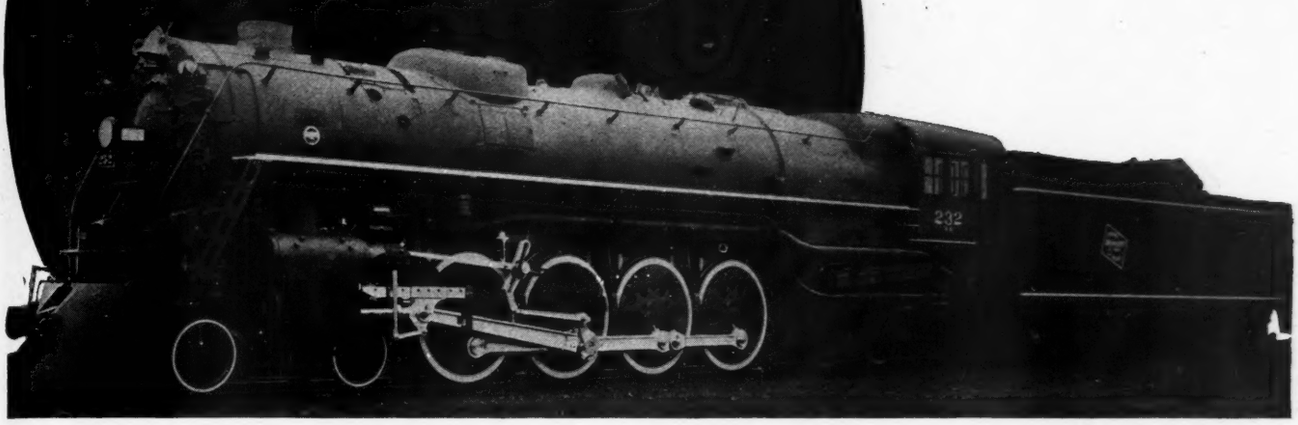
Wear Resisting PARTS



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HUNT-SPILLER *Air Furnace* GUN IRON

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF AUGUST AND EIGHT MONTHS OF CALENDAR YEAR 1941—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income 1941	Net railway operating income 1940
St. Louis Southwestern Lines	Aug.	1,617	$2,406,440	$44,723	$2,534,334	$456,800	$315,186	$82,944	$607,122	$1,544,933	61.0	$989,401	$743,200	$635,124	$176,322
	8 mos.	1,625	16,545,390	407,735	17,540,999	2,440,363	2,352,201	677,504	4,697,023	10,807,502	61.6	6,733,497	5,303,825	4,095,571	1,586,224
Seaboard Air Line	Aug.	4,310	3,817,384	759,109	4,956,144	600,941	1,065,045	174,550	1,736,421	3,801,923	76.7	1,154,221	884,221	808,551	—31,846
	8 mos.	4,310	30,614,416	7,606,029	41,492,630	5,445,347	7,613,834	1,480,505	14,347,415	30,838,391	74.3	10,654,239	8,069,239	6,845,216	2,130,853
Southern Railway	Aug.	6,567	10,224,816	1,319,069	12,266,304	1,239,026	1,981,396	176,747	3,575,750	7,342,822	59.9	4,923,482	3,226,207	3,057,132	1,590,107
	8 mos.	6,567	73,800,152	8,809,691	88,450,213	9,259,493	14,473,460	1,404,612	27,509,641	55,486,801	62.7	32,963,412	22,878,170	20,754,799	11,507,009
Alabama Great Southern	Aug.	315	827,013	110,037	990,776	82,739	176,055	17,017	254,205	557,949	56.3	432,827	254,898	257,865	223,040
	8 mos.	315	5,649,424	791,831	6,878,935	699,304	1,393,966	128,983	1,903,329	4,335,341	63.0	2,543,594	1,511,026	1,501,462	1,047,649
Cincinnati, New Orleans & Texas Pacific	Aug.	337	1,784,006	139,717	2,006,405	188,995	415,766	29,069	476,186	1,164,349	58.0	842,056	444,448	454,042	449,468
	8 mos.	337	12,801,191	1,247,712	14,740,984	1,391,613	2,851,187	243,179	3,537,490	8,470,370	57.5	6,270,614	4,006,968	4,079,626	3,248,198
Georgia Southern & Florida	Aug.	398	222,651	45,487	287,830	34,027	48,480	2,389	96,471	189,328	65.8	98,502	75,490	55,196	8,320
	8 mos.	398	1,788,054	424,929	2,508,974	307,234	372,662	19,660	888,133	1,661,656	66.2	847,318	636,206	433,900	86,925
New Orleans & Northeastern	Aug.	204	400,013	59,966	487,980	47,166	42,792	8,958	116,035	232,817	47.7	255,163	136,464	100,998	50,709
	8 mos.	204	2,758,731	452,235	3,414,002	339,948	302,692	63,598	877,518	1,705,513	50.0	1,708,489	1,090,537	855,248	275,408
Southern Pacific	Aug.	8,590	17,517,345	2,793,205	21,909,395	2,156,094	3,111,441	372,950	7,348,189	14,013,149	64.0	7,896,246	6,142,910	4,939,741	2,810,028
	8 mos.	8,596	117,982,328	16,925,598	145,704,343	12,671,559	23,432,970	3,014,461	50,284,861	96,572,395	66.3	49,131,948	38,661,539	31,227,143	11,973,945
Southern Pacific Steamship Lines	Aug.	.....	—26,024	—12	—22,232	13,665	—8,268	1,492	13,854	35,803	Destroyed	—58,035	—60,181	—60,181	65,424
	8 mos.	.....	4,180,794	54,317	4,447,762	239,474	489,050	87,399	30,574,478	4,092,152	92.0	355,610	196,621	182,299	293,242
Texas & New Orleans	Aug.	4,417	4,682,441	460,715	5,523,503	634,630	865,250	130,012	1,509,435	3,345,154	60.6	2,178,349	1,685,497	1,404,571	446,001
	8 mos.	4,417	31,671,595	3,138,286	37,475,229	4,776,537	6,073,485	999,129	11,320,771	24,822,376	66.2	12,652,853	9,954,205	7,782,079	2,203,383
Spokane, Portland & Seattle	Aug.	948	1,180,243	49,414	1,291,372	156,404	91,266	11,051	381,469	674,266	52.2	617,106	537,505	417,507	153,167
	8 mos.	948	7,433,944	271,583	8,183,271	1,476,928	725,916	85,701	2,554,386	5,091,805	62.2	3,091,466	2,509,868	1,786,037	427,810
Tennessee Central	Aug.	286	236,725	4,051	257,345	42,505	40,490	7,846	81,030	181,416	70.5	75,929	54,902	45,210	19,546
	8 mos.	286	1,788,792	36,064	1,942,382	315,093	293,371	57,056	631,335	1,379,102	71.0	563,280	393,371	300,973	185,926
Texas & Pacific	Aug.	1,893	2,319,776	283,752	2,826,934	359,488	487,017	73,897	758,374	1,800,384	63.7	1,026,550	654,500	568,782	357,509
	8 mos.	1,889	16,504,777	2,016,883	20,237,904	2,193,383	3,764,500	604,020	5,951,556	13,468,480	66.6	6,769,424	4,898,052	4,170,940	2,849,214
Texas Mexican	Aug.	162	115,619	252	134,796	16,088	11,182	3,400	38,205	75,861	56.3	58,935	52,274	50,953	9,154
	8 mos.	162	768,349	2,429	889,553	123,140	92,638	25,772	272,607	573,566	64.5	315,987	250,248	221,654	15,406
Toledo, Peoria & Western	Aug.	239	258,558	3	263,158	35,955	16,714	17,729	51,839	134,849	51.2	128,309	40,051	20,895	38,990
	8 mos.	239	1,797,970	17	1,826,230	309,294	127,317	148,099	381,570	1,079,630	59.1	746,600	399,666	260,036	211,874
Union Pacific System	Aug.	9,872	17,093,061	2,256,775	20,812,186	3,161,652	4,381,167	438,993	5,861,375	14,788,858	71.1	6,023,328	3,958,848	2,949,941	2,470,642
	8 mos.	9,881	108,439,731	13,815,978	132,472,340	16,895,216	29,932,024	3,597,314	42,595,568	99,614,233	75.2	32,858,107	18,964,456	13,334,810	10,309,491
Utah	Aug.	111	98,614	.....	98,703	18,366	26013	398	21,776	71,151	72.1	27,552	21,664	22,506	1,371
	8 mos.	111	521,313	.....	522,043	84,502	178,539	3,594	139,430	439,534	84.2	82,509	11,069	41,775	19,180
Virginian	Aug.	653	2,498,025	4,664	2,566,169	198,023	451,589	24,950	361,355	1,073,581	41.8	1,492,588	687,588	753,075	669,976
	8 mos.	653	17,356,682	23,189	17,853,067	1,501,083	3,420,588	203,586	2,634,892	8,070,996	45.2	9,782,071	4,943,611	5,284,248	6,846,539
Wabash	Aug.	2,409	4,310,123	249,605	4,899,368	639,980	685,227	152,947	1,688,888	3,338,319	68.1	1,561,049	1,331,826	978,350	292,777
	8 mos.	2,409	33,067,170	1,867,597	37,376,192	4,533,601	5,647,243	1,222,587	12,984,017	25,663,467	68.7	11,712,725	8,996,940	6,314,783	1,567,288
Ann Arbor	Aug.	294	403,154	3,509	430,912	44,558	72,185	14,418	160,334	304,357	70.6	126,555	82,234	68,155	54,455
	8 mos.	294	2,988,301	18,903	3,108,424	264,958	543,560	111,209	1,246,163	2,266,664	72.9	841,760	555,201	445,230	194,522
Western Maryland	Aug.	859	1,955,811	14,218	2,036,862	239,610	403,936	45,188	483,473	1,227,151	60.2	809,711	569,711	620,091	565,050
	8 mos.	859	13,926,080	67,400	14,484,568	1,684,694	3,055,493	333,850	3,577,031	9,088,253	62.7	5,396,315	3,816,315	3,962,888	3,416,623
Western Pacific	Aug.	1,195	2,152,647	76,766	2,279,761	229,907	290,643	66,470	735,792	1,388,392	60.9	891,369	746,944	642,808	235,746
	8 mos.	1,195	13,022,639	498,596	13,831,345	1,787,123	2,349,522	548,786	4,963,884	10,122,929	73.2	3,708,416	2,847,835	2,059,301	679,145
Wheeling & Lake Erie	Aug.	507	1,877,334	.....	1,988,273	269,482	340,200	36,419	535,212	1,213,726	61.0	774,547	216,603	344,819	378,134
	8 mos.	507	12,992,633	33	13,712,227	1,669,113	2,673,423	301,574	3,730,594	8,656,386	63.1	5,055,841	1,693,372	2,702,254	2,990,390